The Iron Age

A Review of the Hardware and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 10 Warren Street, New York.

Vol. XVI: No. 15. *New York, Thursday, October 7, 1875.* *$4·50 a Year, Including Postage. Single Copies, Ten Cents.*

Seventy-Ton Steam Crane at Dundee.

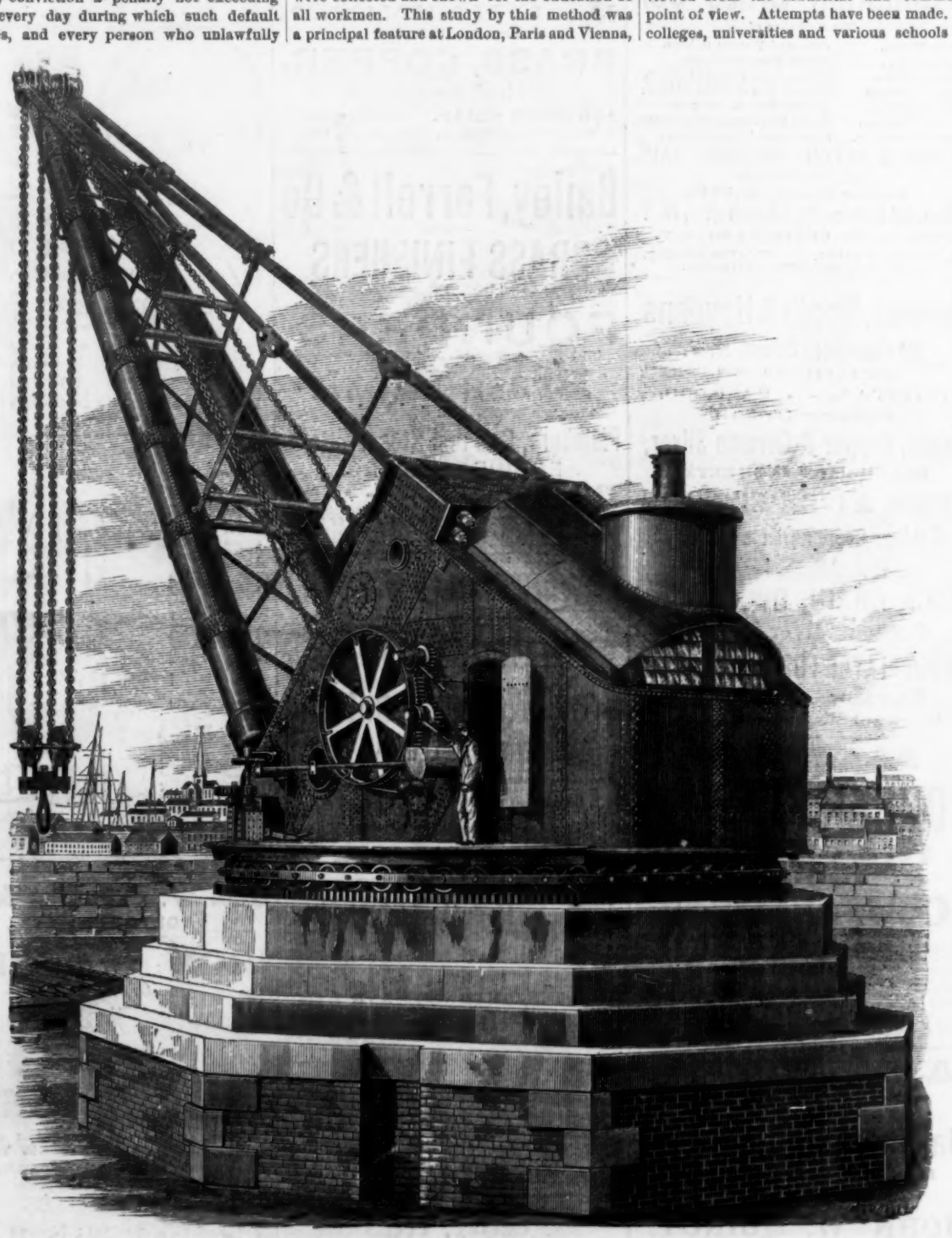
The crane shown in the accompanying illustration was built by Messrs. James Taylor & Co., of Birkenhead, for the Victoria Basin, at Dundee. It is nominally a 70-ton crane, but the test load is 90 tons, and the makers have no fear of putting a 100 tons on it. It has already carried 80 tons, lifting that load with only two-thirds of the allowed pressure of steam, and lowering on the brake with a nicety that would enable the most delicate adjustment of its load, in case of its being used in erecting marine engines, to be made with confidence.

The crane will deposit its load a clear distance of 40 ft. from the face of the quay wall, or 56 ft. from the center of the pedestal of masonry on which it is fixed. And the head of the jib is 60 ft. in perpendicular hight from the coping of the pedestal.

The main features of construction are in the arrangement by which the center post common in cranes gives way to a central pin, only subject to direct upward tension, the whole crane acting as a lever to raise it vertically. The fulcrum is the ring of 60 rollers running on the cast iron and steel roller race on the top of the stonework, eight or nine of which at a time take the thrust at the foot of the jib, and constantly changing as the crane revolves, and the resistance is the weight of the masonry secured by six massive radiating holding down bolts by which the central pin is anchored.

The hoisting is effected by two barrels winding simultaneously the two ends of the chain, which from the barrels lead to pulleys on the jib head, thence drop to and rise again from the gin block, the middle or loop of the chain being on a fixed compensating pulley hung fast close below the jib head. The gin block weighs 4 tons. The winding barrels are grooved right and left, by which an even distribution of strains on the crane framing is secured. There are three speeds of lift, beside a separate crab with a single chain for light lifts up to 10 tons. The hoisting engines are a pair of vertical direct acting engines with cylinders 10 in. diameter and 16 in. stroke.

The revolving is effected by a pair of smaller independent horizontal engines. The boiler is a vertical one, very large in proportion to the work to be performed, and is fed by an injector. All the valves and levers are easily within reach of one engine or crane driver. Wrought iron predominates in the structure, and is obviously the best material for the framing, the jib, the center pin and all such important parts of the machine.



SEVENTY-TON CRANE—VICTORIA BASIN, DUNDEE.

The Conspiracy Bill.

The following is a brief extract of the new conspiracy bill as amended by Parliament, which will be of interest to our readers as showing the legal status of the trade union in Great Britain: An agreement or combination by two or more persons to do or procure to be done, say any act in contemplation or furtherance of a trade dispute between employers and workmen, shall not be indictable as a conspiracy, if such act committed by one person would not be punishable as a crime. Nothing in this section shall exempt from punishment any persons guilty of a conspiracy for which a punishment is awarded by any Act of Parliament. Nothing in this section shall affect the law relating to riot, unlawful assembly, breach of the peace, sedition, or any offence against the State or the Sovereign. A crime for the purpose of this section means an offence punishable on indictment, or an offence which is punishable on summary conviction, and for the commission of which the offender is liable under the statute making the offence punishable to be imprisoned either absolutely or at the discretion of the court as an alternative to some other punishment. When a person is convicted of any such agreement or combination as aforesaid, to do an act which is punishable only on summary conviction, and is sentenced to imprisonment, the imprisonment shall not exceed three months, or such longer time, if any, as may have been prescribed by the statute for the punishment of the said act when committed by one person.

Where a person employed by a municipal authority or public company, or by any company or contractor upon whom is imposed by Act of Parliament the duty, or who have otherwise assumed the duty of supplying any city, borough, town or place, or any part thereof, with gas or water, wilfully and maliciously breaks a contract of service with that authority or company, knowing or having reasonable cause to believe that the probable consequences of his doing so, either alone or in combination with others, will be to deprive the inhabitants of that city, borough, town, place or part, wholly or to a great extent of their supply of gas or water, he shall, on conviction thereof by a court of summary jurisdiction or an indictment as hereinafter mentioned, be liable either to pay a penalty not exceeding £20, or to be imprisoned for a term not exceeding three months, with or without hard labor. Every such municipal authority or public company, or any such company or contractor, as is mentioned in this section, shall cause to be posted up at the gas or water works, as the case may be, belonging to such authority or company or contractor, a printed copy of this section in some conspicuous place, where the same may be conveniently read by the persons employed, and as often as such copy becomes defaced, obliterated, or destroyed, shall cause it to be renewed with all reasonable dispatch. If any municipal authority or public company, or any such company or contractor, make default in complying with the provisions of this section in relation to such notice as aforesaid, they shall incur on summary conviction a penalty not exceeding £5 for every day during which such default continues, and every person who unlawfully injures, defaces, or covers up any notice so posted up as aforesaid in pursuance of this Act shall be liable on summary conviction to a penalty not exceeding 40/.

Where a person wilfully and maliciously breaks a contract of service, knowing or having reasonable cause to believe that the probable consequences of his doing so, either alone or in combination with others, will be to endanger human life, or cause serious bodily injury, or to expose valuable property, whether real or personal to destruction or serious injury, he shall on conviction thereof by a court of summary jurisdiction, or on indictment as hereinafter mentioned, be liable either to pay a penalty not exceeding £20, or to be imprisoned for a term not exceeding three months, with or without hard labor.

Where a person is accused before a court of summary jurisdiction of any offence made punishable by the foregoing provisions of this Act, or any offence under the Criminal Law Amendment Act, 1871, the accused may, on appearing before the court of summary jurisdiction, declare that he objects to being tried for such offence by a court of summary jurisdiction, and thereupon the court of summary jurisdiction may deal with the case in all respects as if the accused were charged with an indictable offence and not an offence punishable on summary conviction, and the offence may be prosecuted on indictment accordingly.

Industrial Art.

In the grand industrial revival that now stirs the world with its beginnings, and is seen in China and Russia and Japan, as well as in this country and all Western Europe, there is no feature more notable than the application of art to industry. This had an earlier genesis than the great exhibitions by which it has been so wonderfully advanced; and the study of classic styles had been helped by that of Moorish and Oriental, and the tastes of different nations had been consulted before their goods and wares were collected and shown for the education of all workmen. This study by this method was a principal feature at London, Paris and Vienna, and it revolutionized some departments of fabrication and resulted in more beautiful products for all use, while extending the sale of those products that combined beauty with service in the finest proportions. The success has not only stimulated but compelled attention to grace and ornament; so that there is now no country having, or hoping to have, manufactures of importance that dares to disregard the fact, and the most energetic are dispatching experts to learn the knowledge and uses of every land, in order that this knowledge may be wrought, woven, cast, stamped or otherwise used in fabrications, whether for use or sale.

Schools have been instituted by governments for this very end. London has one, Paris one, Berlin one, Vienna one, and now Italy, the very home of art, instead of reserving it for bandy legged Herculeses and cheap goddesses in paint or plaster, has been forced to establish a school for glass industry near Venice—near where that industry had its revival and has its highest renown; one for mosaics near by, contiguous to a school for the lace industry; one for wood carving at Florence; and the free public schools of Bologna make art industry a branch in their studies. This all occurs in the very seat of art, where, if anywhere, art itself need not be made part in necessary tuition. It is no mean addition to all the evidence of Italian regeneration that this has occurred, and the simple occurrence is rendered more significant by the practical purpose considered.

The nature and extent of this movement forces its consideration here. We, as a manufacturing people, need to render our manufactures in every particular comparable with those of every other country, whether this is done in order to command our own markets or to seek the markets of other lands. Our commerce is no less concerned than our manufactures that this should be done, and the gratification and higher culture of the people are ministered to in this way at the same time. The desirability of the procedure viewed from the æsthetic and educational side is not less than its importance viewed from the industrial and commercial point of view. Attempts have been made. The colleges, universities and various schools connected with them have broken ground. There are what are termed schools of art, existing independently. Manufacturers pay as they never dreamed of doing a few years since for designs and ornamentation. Artists have noticed the fact and acted upon it in some way. And now, when the matter is spreading and gaining new importance daily by the great rivalry of fabrication and commerce, the Centennial comes, with its unparalleled provision to the same end, and the art gallery constitutes the germ of what must be rendered complete and permanent, and expanded into a school.

The subject is not new in these columns, and we need not reiterate our conviction of the prime importance of giving higher place to art culture in education and esteem, not only for the softening influence it exerts upon manners and the needful influence it has upon all culture and social life, but quite as clearly for its direct relevancy to the profits of all our mills and workshops and the general exchanges of the country. Given two articles of the same material and equal strength and fitness for the same purpose, that which is most pleasing to the taste will be selected even by a Digger Indian. The positive beauty will effect a sale when there is no need in another class. The great exhibition will be such a school for all who visit it; such a means of comparing relative proficiencies; such a lesson in our excellences and failures, and in the failures and excellences of other lands, as we have never had. It will be studied by other countries in this light, and our manufacturers, artists and workmen must be prepared to learn from it.—*North American.*

Plea For Honest Work.

A society exists in Boston—the "Massachusetts Charitable Mechanics' Association"—of which Paul Revere, of Revolutionary fame, was the first president. This association holds triennially a meeting; not in the nature of a "fair" or "exposition," but of a festival or pic-nic, taking some suburban spot as its place of assembling. At the recent triennial (the twenty-third), Mr William Ralph Emerson was the orator. We take from his pleasant and instructive address a few ideas upon honesty in mechanics and manufactures, condensing and arranging the matter for convenience of space.

Two thousand years ago, Mr. Emerson said, there was a law among the Hindoos forbidding the addition of such dishonest articles in the manufacture of cloth as gave it greater money value at the expense of real utility. And such additions these old Hindoos called "devil's dust." Mr. Emerson said that it is useless to ignore the fact that American manufactures are deeply overlaid with devil's dust. But we may remark that his blame is not sufficiently comprehensive. It should have included a large portion of the manufactures of the world in the condemnation. There are markets hitherto held by European manufactures in which American are now preferred, because those first in the field have presumed upon their apparent monopoly to cheat their customers.

To return to Mr. Emerson. He said that devil's dust made the clothing of the armies drop in rags from their shoulders and their shoes give way, and that even flags were blown into shreds not more by the battle blast than because there was shoddy in the bunting. In contract manufactured furniture the painter's brush, glue, putty and sand paper are employed, not so much for the purpose of imitating what a thing is not as for concealing what it really is. When the speaker tells us of furniture put together with nails made to look like screws, but possessing nothing resembling the screw except the head, it seems as if he were "telling tales out of school." But we have seen screws intended to be fairly driven with a regular driver, sent home all the way into soft wood with a hammer. Galvanized iron statues, hollow and colored to look like bronze, come under the orator's censure. He has not seen everything yet, however. We could show him in Philadelphia tomb "stones" on sale, in lots to suit purchasers, yet in their primitive color of the galvanized metal, the tint, whether marble, sand stone or granite, to be applied when ordered. Perhaps these articles come from New England.

Against brick work coated to look like stone, and shortly casting its skin in vindication of its birth right; against marble tablets made with the brush upon lath and plaster; against the eccentric productions of the gig saw, and pagoda architecture for the display of "tinsel and frippery," Mr. Emerson protests. He wants things durable—built for the love of work, not for the love of money. Such things may be had if he who wants is willing to pay for them, and to purchase faithful slow-hand work in lieu of rapidly done work by machinery. And such things as durability, taste and completeness are found in the best houses built for private occupation and without limit as to cost. The world to-day, however, demands more than the unaided labor of its hands can furnish. Too many shawls are worn—and handsome shawls too—for the wearers to wait while the individual workers turn out one shawl in a lifetime for each weaver. We must restrict the demand for hand made excellence to articles of pure taste and elegance. Yet even here come in the photographer and the chromo maker—the first to dispossess the painter entirely, and the last to scatter copies of such works as genius produces by thousands and tens of thousands, and to make a copy of a painter's master-piece the prize for the purchase of a pound of tea. It cannot be helped, Oh, Ruskin! It cannot be mended, Oh, Emerson! Heartily we join in the demand for honest work, where use, and safety and health are considered, but people will accept "shams" as long as they wear clothes. The only thing that can be required is that nothing be warranted above its value, and that fair price be the assurance of thoroughness. Then those who buy will understand what they are paying for.—*Philadelphia Ledger.*

It is proposed to use the Memorial Hall, Fairmount Park, Philadelphia, for a permanent Museum of Industrial Art. The project is warmly approved by the leading citizens of the city and State, and promises to be successful.

Metals.

ANSONIA

BRASS & COPPER CO.

19 and 21 Cliff Street,

(Adjoining Office of Phelps, Dodge & Co.)

Sheet Brass, Planished Brass, Polished Brass Door Rails, Brass Wire, Hayden's Patent Brass Kettles, Brass Tubing, Lamp Burners, Gun Burners.

Sheet Copper, Planished Copper, Copper Rivets & Burs, Braziers' & Bolt Copper, Braziers' Rivets, Copper Tubing, Copper Bottoms, Copper Wire, Iron Wire, Fence Wire.

A large variety of Wood and Bronze Case Clocks.

MANUFACTORIES AT ANSONIA, CONN.

Phelps, Dodge & Co.,

IMPORTERS OF

TIN PLATE,

Sheet Iron, Copper, Pig Tin, Wire, Zinc, etc.

MANUFACTURERS OF

COPPER and BRASS.

19 Cliff St., bet. John and Fulton,

NEW YORK.

A. A. THOMSON & CO.

Importers and Dealers in

Tin Plate, Sheet Iron,

ZINC, COPPER, WIRE,

Block Tin Spelter, Solder, &c.

Nos. 213 and 215 Water and 119 Beekman Sts.,

NEW YORK.

P. O. Box, 61.

T. B. CODDINGTON & CO.,

95 & 97 Cliff St., New York.

Importers of

TIN PLATES,

And METALS of all descriptions.

N. L. CORT & CO.,

Importers and Dealers in

Tin Plate, Pig Tin,

SHEET IRON, SOLDER, ZINC, &c., &c.

220 & 222 Water and 115 & 117 Beekman Streets,

N. L. Cort, C. P. Cort, NEW YORK.

SCOVILL MFG. CO.,

419 & 421 Broome St., New York.

MANUFACTURERS OF

SHEET AND ROLL BRASS,
BRASS AND COPPER WIRE,
GERMAN SILVER. BRASS BUTT HINGES,
KEROSENE BURNERS,
METAL BLANKS CUT TO ORDER.
CLOTH AND METAL BUTTONS, in every variety.

PHOTOGRAPHIC GOODS.

MANUFACTORIES:

Waterbury, Conn.,
New Haven, Conn.,
New York City.

EVANS & ASKIN

BIRMINGHAM ENGLAND,

Refiners of Nickel and Cobalt.

SOLE AGENTS,

VAN WART & McCOY,

134 & 136 Duane Street, N. Y.

Nickel and Cobalt always in stock.

E. A. Williams & Son,

BRASS & BELL FOUNDRY

No. 107 Plymouth Street,

Bet. Washington & Warren Sts., Jersey City, N. J.

Anti Friction Metals

Metals.

Waterbury Brass Co.

CAPITAL, - - $400,000.

JOHN SHERMAN, Agent,

No. 52 Beekman Street, NEW YORK.

Mills at WATERBURY, CONN.

Sheet, Rolled and Platers' Brass,

GERMAN SILVER,

Copper, Brass and German Silver Wire,

BRASS AND COPPER TUBING,

COPPER RIVETS & BURS,

BRASS KETTLES,

WASH BASINS,

Door Rail, Brass Tags & Step Plates.

PERCUSSION CAPS,

POWDER FLASKS,

Metallic Eylets,

Shot Pouches,

Tape Measures, etc.

Manhattan Brass Co.,

Manufacturers of

Sheet Brass, Brass Wire, Copper Wire, Copper Rivets, Brass Tubing, Spelter Tubing, Satchel Frames.

Olmsted Patent Oilers, Prior Patent Oilers, Broughton Patent Oilers, Brass, Tin & Zinc Oilers, Hurricane Lanterns, Baby Carriage Hardware, Stationers' Hardware.

BROWN'S PATENT PICTURE NAIL,

Pat. July 6th, 1875.

Agents for Hartford Eyelet Co.

Office, 83 Reade cor. Church Sts., N. Y.

Works, 1st. Ave. 27th to 28th Sts., N. Y.

J. H. WHITE, President. H. L. COE, Secretary.
STEPHEN A. MIDDLEBROOK, Treasurer.

Holmes, Booth & Haydens,

49 Chambers Street, N. Y.

ESTABLISHED 1853.

CAPITAL, - - $400,000.

Manufacturers of all kinds of

Brass, Copper & German Silver,

ROLLED AND IN SHEETS.

BRASS & COPPER WIRE,

Tubing, Copper Rivets & Burs.

BRASS & IRON

JACK CHAIN, DOOR RAIL.

German Silver Spoons,

SILVER PLATED FORKS & SPOONS,

Kerosene Burners, &c.

Works at Waterbury, Conn.

BALTIMORE

COPPER WORKS.

POPE, COLE & CO.,

Are now Purchasing

Copper Ores

and smelting and refining at these works, where, with experienced workmen and unusual facilities, we are turning out Ingot and Cake Copper of unequalled purity and toughness.

We are prepared to buy Ores, Matte, Regulus and other furnace material, in any quantities.

Office, 57 South Gay St., Works at Canton, Baltimore Md.

A. HARNICKELL,

22 Cliff Street, New York,

Offers from store

Baltimore Ingot Copper,

Lake Copper, Braziers Sheets, &c.

Old Copper bought.

JOHN W. QUINCY,

98 William Street, New York,

Dealer in

AMERICAN AND FOREIGN SPELTER,

COPPER, TIN, NICKEL,

And Metals generally.

Philadelphia Nickel Plating Works.

John Hartman,

37 1-2 North Seventh Street, Philadelphia.

Electro-Nickel Plating

Of all Metallic Articles finished in the best manner.

Fuller, Dana & Fitz,

METAL MERCHANTS.

Importers of Tin Plates, Pig Tin, Russia Sheet Iron, Swedish Iron, Etc.

110 North St., BOSTON.

RUSSIA SHEET IRON,

Perfect and No. 1 Stained, in Store and for sale at lowest rates by

A. A. THOMSON & CO., 213 & 215 Water St., NEW YORK.

Metals.

The Plume & Atwood Mfg. Company,

MANUFACTURERS OF

SHEET and ROLL BRASS and WIRE,

German Silver and Gilding Metal,

Copper Rivets and Burs,

Kerosene Burners,

Shoe Eyelets, Lamp Trimmings, &c.

80 Chambers Street, New York.

13 Federal Street, Boston.

Rolling Mill, THOMASTON, Ct. | Factories, WATERBURY, Ct.

JOHN DAVOL & SONS,

Agents for

Brooklyn Brass and Copper Co.,

Dealers in

Ingot Copper, Spelter, Lead, Tin, Antimony, Solder & Old Metals.

100 John Street, N. Y.

W. J. HAMMOND,

Dealer in all kinds of

BRASS, COPPER,

Cast Iron, Wrought Iron,

AND STEEL SCRAP. *Cor. Eleventh St. and Duquesne Way, Pittsburgh, Pa.*

Bailey, Farrell & Co

BRASS FINISHERS

and

FOUNDERS.

Brass Work

FOR

Plumbers, Gas and Steam Fitters.

ENGINE BUILDERS.

Pittsburgh, - - Pa.

New Catalogue packed with first order or mailed on receipt of eight stamps.

EDWARD MILLER & CO.,

Manufacturers of

SHEET BRASS,

Brass Kettles, Lanterns

OILERS, KETTLE EARS,

Spouts, Tinmens' Trimmings, Kerosene Lamps, Burners, Trimmings, &c.

4 Warren Street, New York.

Mill and Factories, Meriden, Conn.

The Wilmot Mfg. Co.,

96 John St., Bridgeport, Conn.

Manufacturers of

KEROSENE BURNERS AND LAMP TRIMMINGS, Etc.

We invite your attention to our extensive facilities for manufacturing articles of utility, novelty, or embellishment, and assure you of our ability to meet the requirements of every branch of trade. The increasing demand upon us has made it necessary to extend our works, and we now occupy the entire premises, No. 99 John Street, and our facilities for the production of Light Metallic Goods, in Copper, Brass or other Sheet Metals, are unsurpassed. The use of the most approved machinery and appliances, our long experience and established reputation in this branch of manufacture, encourage us to solicit still more extended relations with those who require work of this class, and we take this method of calling your attention to our establishment.

Wire, etc.

BRIDGEPORT BRASS CO.,

62 John Street, New York, Manufacturers of

Brass Door Rail, Copper Rivets and Burs, Lightning Rod Copper, Gun Burner Shades & Rings, Lamp Collars and Sockets, Kerosene Oil Burners, Brass Hand Lamps, &c., &c.

Gun Burners, Brass Tubing, Brass and Copper Wire, Copper Bottoms, Iron and Tinned Rivets, Brass and Japanned Oilers, Tin Tobacco Boxes, Farmers' Lanterns.

ORDERS SOLICITED FOR SHEET BRASS.

Manufactories at Bridgeport, Conn.

The above cut represents our new **Marcy Lantern**, so that its advantages over others in market can readily be seen. With a tempered steel elliptic spring operating directly on the top, it can readily be adjusted and is firmly locked in its place. No sudden pressure on the guards or frame will displace the Globe; the Frame, Rail and Lock being all connected, there are no small parts to get lost or worn out. Arrangements complete for burning Kerosene, Candle and Oil.

Wire, etc.

National Wire and Lantern Works.

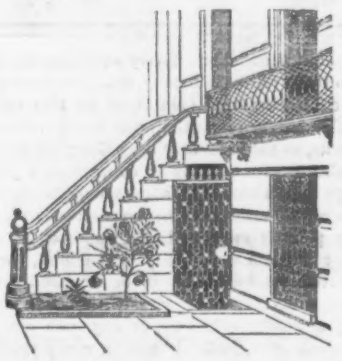
Warehouse, 45 Fulton Street, New York.

HOWARD & MORSE,

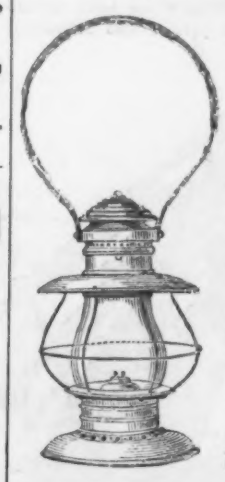
MANUFACTURERS OF

BRASS, COPPER AND IRON

WIRE CLOTH,



Ship and Railroad Lanterns,



Signal Lights, Conductors' Lanterns

ADJUSTABLE GLOBE HAND LANTERN,

DESK AND OFFICE RAILING

Riddles, Coal and Sand Screens,

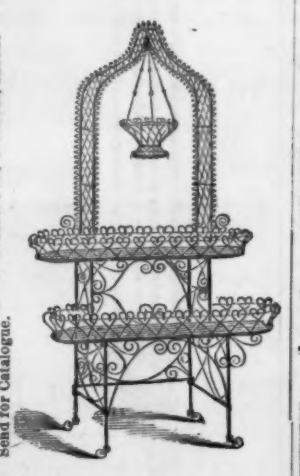
NURSERY FENDERS & SPARK GUARDS

Ornamental Wire Fence.

IMPROVED WIRE

Flower Pot Stands,

Wire Counter Railing, Wire Fencing, Steel Wire Casting Brushes, Weather Vanes, Stable Furniture, Bird Cages, Iron and Brass Wire Cloth, Twilled and Spark Manufactured by E. T. BARNUM, Detroit, Mich. Send for Catalogue.

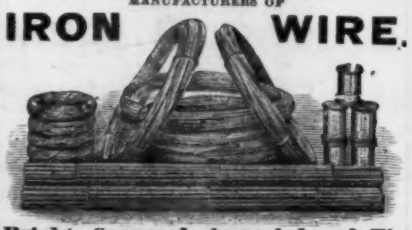


Geo. W. Prentiss & Co.,

HOLYOKE, MASS.,

MANUFACTURERS OF

IRON WIRE.



Bright, Coppered, Annealed and Tin Plated. Also **GUN SCREW WIRE**

Of all sizes straightened and cut to order.

Cleveland Wire Works,

W. S. TYLER,

Office & Works, 754 & 758 St. Clair St., Cleveland, O.

Manufacturer of Steel, Copper, Brass and Iron Wire Cloth, Steel Locomotive Cloth, Steel Smut and Mill Screen Cloth, Steel Coal and Sand Screens, Steel and Brass Foundry Riddles, Wire Office Railing and Fencing, Ornamental Wire Work, Steel and Tinned Flour Seives, &c.

Wire, etc.

Washburn & Moen Mfg. Company

WORCESTER, MASS.

Established 1831.

PHILIP L. MOEN, President and Treasurer.
CHAS. F. WASHBURN, Sec'y.

MANUFACTURERS OF

IRON AND STEEL WIRE.

WIRE RODS of all Grades; Round Iron, Rivet quality, 3-16 in. to ½ in., cut to any length.
Owners and exclusive Operators of the

PATENT CONTINUOUS MILL,

Producing Iron and Steel WIRE, in coils of 100 pounds, without SEAM OR WELD.

Plain and Patent Galvanized Telegraph Wire,

Market and Stone Wire, Annealed Fence and Grape Wire in long lengths; Coppered Pull-Rail Wire; Rope, Bridge, Bolt, Screw, Rivet, Buckle and Chain Wire. Wire for the manufacture of Card Clothing, Heddles, Reeds, &c. Piano-string Covering Wire, Tinned Broom Wire and Tinned-plated Wire of all sizes. A specialty is made of Clock, Machinery, Gun Screw and Spiral Spring Wire, and Refined Wire to Pattern for particular purposes, from selected stamps of Norway Iron. Any grade of Wire furnished, Annealed, Bright, Polished, Coppered, Galvanized or Tin Plated. Wire furnished, Straightened and Cut to any length.

Steel Crinoline Wire, Patent Linen finish.
Unrivalled Steel Music Wire.

Steel Wire for Springs, Needles and Drills. Market Steel Wire kept in stock, all sizes.

Warehouse, 42 Cliff Street, NEW YORK.

THE

Gilbert & Bennett Mfg. Co.,

GEORGETOWN, CONN.,

MANUFACTURERS OF

Iron Wire, Curled Hair

AND GLUE.

Coal, Oat and Hair Sieves.
Hair & Wire Gravy Sieves.
Brass and Iron Riddles.
Brass and Iron Wire Cloth.
Cheese Sales.
Coal and Sand Screens.
Wire Ox Muzzles.
Steve Cover Lifters.
Coal Hods and Shovels.
Stove Scrapers and Pokers.

Gilbert's Rival Ash Sieve.

UNION METALLIC CLOTHES LINE

WIRE.

The highest price paid for Cattle's Tails and Hog's Hair

WAREHOUSE,

273 Pearl Street, New York.

THE TRENTON IRON CO.,

Trenton, N. J.

JAMES HALL, Treas. CHAS. HEWITT, Prest

IRON & WIRE.

Bar Iron.	Wire Rods.		Brazier Rods.
Market Wire,			Weaving Wire,
Screw Wire,			Spring Wire,
Bail Wire,			Buckle Wire,
Fence Wire,			Telegraph Wire,
Bridge Wire,	Coppered.		Chain Wire,
Square Wire,			Flat Wire,
Tinned Wire,			Coppered Wire,
Cast Steel Wire.			"Martin" Steel Wire

GUN SCREW IRON WIRE. NORWAY IRON WIRE.

Wire straightened and cut to any length. Represented in New York by

COOPER, HEWITT & CO.,
17 Burling Slip.

ROEBLING'S

WIRE ROPE

For Best

IRON or STEEL WIRE HOISTING, RUNNING or STANDING ROPES, or BEST GALVANIZED CHARCOAL WIRE ROPES FOR SHIP'S RIGGING,

Address, JNO. A. ROEBLING'S SONS, Manufacturers,

Trenton, N. J. or 117 Liberty St., N. Y.

Wheels and Rope for transmitting power long distances. Send for Circular and Pamphlet.

New Jersey Wire Mill.

HENRY ROBERTS,

Manufacturer of

Steel & Iron Wire,

SPECIALTIES.

Tinned Wire, Tinned, Broom, Spring Wire, made from Bessemer Steel; Cast Steel and Iron Coppered Ball Wire; Rivet, Screw, Buckle, Umbrella, Fence Brush, Gun Screw Wire; Sewing Machine and Machinery Wire. Fine Wire for weaving. Also Wire of any shape made to order.

WIRE MILL, 39 Oliver St., Newark, N. J.

IRON AND STEEL WIRE ROPE

For Hoisting, Running & Standing Ropes, Ferries, &c.

CONSTANTLY KEPT ON HAND.

Address, HAZARD MFG. CO., Wilkesbarre, Luzerne Co., Pa.

SAMUEL PARKER & CO., Wethersfield, Conn.,

WEAVERS OF

BRASS COPPER, STEEL AND IRON WIRE CLOTH,

and Manufacturers of

Steel Casting Brushes, Steel Flue Brushes and Brooms,

Plain and Landscape Wire Window Screen Cloth a specialty.

STEEL SPARK CLOTH

and all heavy grades of Wire Cloth for

COAL SCREENS, WINDOW GUARDS, &c.

Brass, Iron, Steel and Galvanized Riddles, Wire Flower Stands and Baskets.

Steel Casting Brush.

New York Agency,

PATTERSON BROS., Park Row, N. Y.

Fire Clay and other Refractory Materials.*

BY GEORGE J. SNELUS, F. C. S.

It will be admitted by all concerned in the manufacture of iron and steel, that it is of the utmost importance to obtain good materials for building their furnaces, while at the same time it can scarcely be said that our knowledge of refractory materials is in a satisfactory state. With these convictions, the writer ventures to place the little information he has been able to gather upon the subject before the Iron and Steel Institute, with a view of eliciting discussion, in the hopes thereby of increasing the general stock of knowledge.

Although it is generally allowed that the ultimate chemical composition of a brick does not altogether decide its fire-resisting property, yet it is often possible to judge from a chemical analysis whether a clay will answer for a given purpose or not.

Thus it is found that the presence of alkalies in sensible quantity, say about 1 per cent., confers so much fusibility upon a clay as to render it unsuitable for very high temperatures. This is well seen in the analyses of clays from the Dowlais and the Newcastle district. The Dowlais clays, numbered 9 and 10, contain respectively 1·43 per cent. and 1·13 per cent of potash, and though bricks made from these clays are used for forge purposes, yet they will not stand above one month in mill furnaces, whilst bricks from clays 11, 12, 13 and 14, last for three months.

Mr. Pattinson believes that it is chiefly owing to the presence of the rather large proportion of alkalies that the Newcastle bricks are less refractory than the Stourbridge.

Lime and magnesia exercise a fluxing effect when present, but when mixed with silica, as in in the Dinas bricks, a small quantity of lime is useful as a binding material, as it can be more intimately combined with the particles of quartz than any other similar substance.

Oxide of iron also exerts a fluxing effect, though in a less degree. It will be noticed that none of the Stourbridge clays contain over 2 per cent.; but if alkalies are absent, iron oxide may be present up to about 3 per cent. without affecting the fusibility of the bricks in a very serious degree. This may be seen by a reference to the analyses of the well known Glenboig bricks, and of the St. Helens' bricks. Blocks from St. Helens last well in the hematite furnaces of West Cumberland. The writer has found these bricks to bear the scouring action of the highly basic slag of a Bessemer furnace better than those from the Leeds district. If, however, the brick is required to stand the intensely high temperature of a steel melting furnace, even this small proportion of oxide of iron becomes injurious.

Alumina appears to be singular in its action, for while it is well known to be one of the most infusible substances in nature, and the compound Bauxite, and also highly aluminous clays, as, for example, the Glenboig, and notably that from the large fire brick works in Maryland, are highly refractory, and ordinary clay, containing less alumina, is less fire resisting, yet when alumina exists in small quantities in silica bricks, it appears to increase their fusibility.

The plasticity of a clay depends on the presence of combined water, and, to some extent, upon the proportion of alumina. Thus the Glenboig clay, which contains a rather large proportion of alumina, is frequently of such a soapy character that it is used instead of soap for washing the hands. The well known porcelain clay, or kaolin, is highly aluminous, and is prized chiefly for its very plastic nature.

These properties cause the clay to shrink much in drying and firing, but after having been highly fired, the material then suffers much less change of volume by subsequent changes of temperature. Hence it is that Glenboig bricks expand and contract so little upon heating and cooling, thus rendering them valuable in situations where changes of form would cause serious inconvenience, as in the regenerators and roofs of Siemens' furnaces.

Silica is also a highly infusible substance, but unlike alumina, its particles have no tendency to adhere or bind together except under the influence of the most intense heat. When, therefore, this material is used for making bricks, a building substance has to be mixed with it. This is the case in the manufacture of the Dinas, or silica bricks, which were formerly made from the Dinas rock, to which a small portion of milk of lime was added. It is now found that these bricks can be made from any pure siliceous stone, by grinding it up and mixing about 1 per cent. milk of lime with it.

In the case of the ganisters, now so largely used for lining Bessemer converters, the cementing material is alumina, which is found naturally combined with the silica. But in this case the physical condition of the substance is of great importance, because it is used in the raw state, or at least without undergoing the process of burning. It is, therefore, important that while it should not shrink much on heating, it should yet bind well together.

The peculiar black ganister of Sheffield possesses these properties in a high degree, and the writer has found none better than that sent out by Mr. Lowood. The rock itself appears to have been subject either to extreme compression or to heat, as it has a peculiarly close texture. Sheffield has, however, by no means a monopoly of this substance, or at least of materials that answer the purpose, as Dowlais and Ebbw Vale are now both making their own from local sources. Even pure quartz rock can be made to answer, by mixing a proper proportion of aluminous clay with it. Where, however, the natural black ganister can be obtained, nothing can answer better for all purposes.

*Paper read before the Iron and Steel Institute at Manchester.

There is another peculiarity possessed by silica, which is, that bricks made from it expand when burnt, so that in making silica bricks the molds must be smaller than the brick.

Thus, for a 9 in. brick, the mold would only be about 8¾ in. long. Every mixture, like every clay, has its own factor of expansion or contraction for the same amount of burning, but this is either increased or diminished by variation in the intensity of heat applied. The clay from which the St. Helens' bricks are made shrinks considerably during drying and burning. Thus, for a 9 in. by 4½ in. by 2½ in. brick, the mold is 9⅝ in. by 4⅜ in. by 3⅛ in. For Glenboig clay, a shrinkage of one-twelfth is allowed, that is, the mold for a 9 in. brick is made 9¾ in. long.

Silica bricks not only expand during burning, but do so still more upon being subject to intense heat, contracting again on cooling; and this expansion and contraction is one of the most important points to take into consideration in building steel melting furnaces. At Dowlais, the man in charge of the furnaces is expected to slacken the tie rods above the furnace while the heat is getting up, and to tighten them as it goes down, so as to follow the expansion and contraction of the roof. At Crewe, it is attempted to make this self acting, by the use of volute springs between the brick staves and the nuts on the tie rods passing through them; while at Creusot they try to make the furnace casing so strong (by the use of wrought iron girders for brick staves, and very strong tie rods) that the center of the roof must rise and fall to allow for the expansion and contraction.

Mr. Riley states that, when at Dowlais, he found the quantity of iron made in a puddling furnace was directly as the percentage of silica in the clay used for making the bricks.

Titanic acid has been shown by Mr. Riley to exist in nearly all clays, but it does not appear to influence their fusibility in any marked degree, and it probably plays the part of silica, to which it is closely allied in all its properties. As much as 1 per cent was found in Stourbridge bricks, but only traces in silica bricks.

It need hardly be pointed out that it is not sufficient to have a good material. Great care must be exercised in manipulating it. If it is to be made into a brick, every pains must be taken to dry it gradually, and to fire it evenly, and to a proper point; while if it is to be used in a semi-plastic state, as in the state of ganister, it should be equally moist throughout, so as to dry evenly, and not so wet as to cause it to crack, or so dry as to prevent it binding.

But there is another practical point in the management of fire bricks which is too often overlooked. Bricks are very porous bodies, and absorb a great deal of moisture, even when under cover, and, of course, much more if allowed to get wet. In fact, apparently dry bricks often contain a good deal of water, and if put into a furnace in this state, and the heat is got up rapidly, the bricks crack and crumble to pieces. This is especially the case with silica bricks, and the writer has known instances of bricks being condemned as chemically bad, when the fault lay with those who used them without properly drying them. It is well in the case of silica bricks to actually set them as hot as they can be handled. In all cases when a furnace is first started, and especially with Siemens furnaces, a very small fire should be kept up for several hours, and then very gradually increased. This plan will add weeks to the life of these furnaces. Most blast furnace managers know and practice this very slow and careful drying of their plant, but it is too often neglected in mill and other furnaces.

A New Self-Acting Saloon.

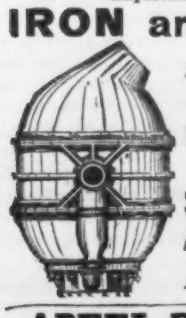
The London *News* of the 15th ult., says: "An invention which has been favorably regarded by the leading authorities on the subject of channel navigation, and which notably is under the attentive consideration of Mr. Mills, Engineer in Chief to the London, Chatham and Dover Railway, with a view to its adoption by that company, was yesterday explained by its originator, Mr. Alexander Walker, C. E., to a party of professional and scientific gentlemen assembled at the Terminus Hotel, Cannon street. In order to understand the nature of Mr. Walker's plan for accomplishing that great public benefit which has hitherto fallen short of practical attainment, we must imagine a longitudinal section of an ordinary passenger steamboat between Dover and Calais. Fore and aft we perceive two circular bell-shaped saloons, each divided into three compartments. The middle space is intended for the general use of passengers, and the division on either side is severally for ladies and for gentlemen. Each of these saloons is carried on a strong central shaft or spindle, which passes vertically through the saloon itself, then through a ball and socket joint fixed in a rigid iron framing beneath the saloon floor, and so downward to a huge spherical counter-weight at its lower end. This globe of solid metal is calculated to compensate doubly the weight of the saloon with its complement of passengers. This might be taken, at a maximum, as eleven tons, and the counter-weight of twenty-two tons would then be ample to secure a free action in accordance with the simple principle of gravitation. Nothing could be more nicely accurate than the maintenance of a true level on a line with the earth in Mr. Walker's working model; nor is it easy, looking at the design on this miniature scale, to detect any point so weak as to invalidate the entire project. The dimensions of the vessel on which it is proposed to make the first trial of the new saloon are 190 feet length between perpendiculars, 20 feet breadth, 14 feet 3 inches depth of hold, and 834 tons burden. The number of passengers accommodated on board will be 150, that is, sixty-five in each saloon. These proportions, however, may be increased or diminished; and it is claimed for the invention that, without loss of stowage, it is applicable to ships not only of all sizes but of all descriptions, and that it may be easily adapted to troopers. Ventilation is ingeniously provided for by fans of novel construction; and, on the whole, Mr. Walker seems to have spared neither thought nor pains in perfecting his invention.

Iron.

NEW YORK.

OGDEN & WALLACE,
Successors to GAM'L G. SMITH & CO.,
IRON WAREHOUSE,
85, 87, 89 and 91 Elm Street, New York.,
(One block below Canal Street.)
Common & Refined Bar Iron,
Sheet & Plate Iron, Rod, Hoop, Band, Scroll, Horse Shoe, Angle & Tee Iron,
PIG IRON, OLD RAILS,
WROUGHT IRON BEAMS.
Iron of all sizes and shapes made to order.

PIERSON & CO.,
Established 1790,
22 & 26 Broadway, 77 & 79 New St.
NEW YORK CITY
AGENTS
Burden's Best Iron
And Burden's H. B. & S. Iron.
All sizes and shapes in stock.

JACKSON & CHACE,
206 & 208 Franklin St., N. Y.,
Importers and Dealers in
IRON and STEEL.

Agents for
JOHN A. GRISWOLD & CO'S
Bessemer Steel.
MACHINERY STEEL,
Cast Steel and
SPRING STEEL,
ANGLE and T IRON.
Special Irons for Bridge and Architectural Work.

ABEEL BROTHERS,
Established 1765 by ABEEL & BYVANCK,
Iron Merchants,
190 South Street and 365 Water, N. Y.
ULSTER IRON
A full assortment of all sizes constantly on hand.
Refined Iron,
Horse-Shoe Iron,
Common Iron.
Band, Hoop and Scroll Iron.
Sheet Iron.
Norway Nail Rods.
Norway Shapes.
Cast, Spring and Tire Steel, etc.

A. R. WHITNEY. J. HENRY WHITNEY.
A. R. Whitney & Bro.,
Manufacturers of and Dealers in
IRON,
56, 58 & 60 Hudson,
48, 50 & 52 Thomas, and } NEW YORK.
12, 14 & 16 Worth Sts.,
Our specialty is in
Manufacturing Iron
Used in the Construction of
Fire-Proof Buildings, Bridges, &c.
AGENCY OF
Abbott Iron Co. Boiler Plate & Tank Iron.
Glasgow Tube Works Boiler Flues.
Pencoyd Iron Works Shafting.
Passaic Rolling Mill Angles and Tees.
A. R. Whitney & Bro.'s Rivets.
Whitney's Best Bar Iron.
Passaic Rolling Mill Wrought Iron Beams and Channel Iron.
Paxton Rolling Mills.
Books containing Cuts of all Iron now made, and Sample Pieces at office. Please address 56 Hudson Street.

METAL ROOFING.
Hickcox Mfg. Co.,
280 Pearl Street, N. Y.,
Manufacture the Patent Corrugated Iron Shingles, making the most durable Roof in the market, not affected by contraction or expansion, which causes soldered tin roofs to leak. Price only $7·50 per square, painted on both sides, packed ready for shipping.

BORDEN & LOVELL,
Commission Merchants
70 & 71 West St.,
Wm. Borden, } — New York.
C. N. Lovell, }
Agents for the sale of
Fall River Iron Co.'s Nails, Bands, Hoops & Rods,
AND
Borden Mining Company's Cumberland Coals.

WILLIAM H. WALLACE & CO.,
IRON MERCHANTS
Cor. Albany & Washington Sts.,
NEW YORK CITY.
Wm H. Wallace Wm. Bispham.

Iron.

NEW YORK.

C. HUERSTEL,
(Successor to CONKLIN & HUERSTEL.)
IRON AND STEEL.
WAREHOUSE,
99 Market Slip, N. Y.
IRON and STEEL of all kinds
Constantly on Hand.
Horse Shoe Iron & Nails, Norway Iron, Cast, Spring, Toe Calk, & Bessemer Steel Tire.
Also, SPRINGS, AXLES and BOLTS,
For Truck and Carriage Makers.

WM. GARDNER'S SONS.
SUCCESSORS TO WM. GARDNER,
575 Grand, 414 Madison & 309 Monroe Sts.
Bar, Hoop, Rod, Band and A. W. Horse Shoe Iron.
NORWAY NAIL RODS AND SHAPES.
Spring, Toe Calk, Tire & Sleigh Shoe Steel.
Manufacturers and Proprietors of
PATENT BOLT HEADER.

A. B. Warner & Son,
IRON MERCHANTS,
28 & 29 West and 52 Washington Sts.
BOILER PLATE,
Boiler Tubes, Angle, Tee & Girder Iron, Boiler and Tank Rivets.
Sole Agents for the celebrated
"Eureka," Pennocks,
"Wawasset," Lukens,
Brands of Iron. Also all descriptions of Plate, Sheet, and Gasometer Iron. Special attention to Locomotive Iron. Fire Box Iron a specialty.

Geo. A. Boynton,
BROKER IN IRON
70 WALL ST, N.Y.

POWERVILLE
ROLLING MILL,
JOHN LEONARD,
450 & 451 West Street, NEW YORK.
Manufacturer of all sizes of MERCHANT IRON and HOOPS. Also Manufacturer of
Best Charcoal Scrap Blooms.
And Dealer in Old and New Iron.

Marshall Lefferts, Jr.,
90 Beekman St., New York,
MANUFACTURER OF
AMERICAN
Galvanized Sheet Iron,
AND AGENT FOR THE
Easton Sheet Iron Works, Easton Pa.
MANUFACTURER OF
Best Bloom, Charcoal & Refined Sheet Iron.
Galvanized Telegraph and Fence Wire
Galvanized and Tinned Roofing and Slating Nails.
Galvanized Hoop Iron of all widths.
Galvanized Staples.
Corrugated Iron for Roofing, plain or gal'd.
Galvanized Bars and Chains for Cemetry Railing.
Tin Plates, Spelter, and other Metals.

DANIEL F. COONEY,
(Late of and Successor to Jas. H. Holdane & Co.)
88 Washington St., N. Y.
BOILER PLATES and SHEET IRON,
LAP WELDED BOILER FLUES.
Boiler Rivets, Angle & T Iron, Cut Nails & Spikes.
Agency for Pottstown Iron Co., Viaduct Iron Works, Lebanon Rolling Mills, Pine Iron Works, Laurel Iron Works, The Bergen Rolling Mills, at Jersey City.

Spooner & Collins,
COMMISSION AGENTS,
PIG IRON
Blooms, Bar, Sheet & Hoop Iron.
409 N. Third St., (Room No. 6), St. Louis.

Bonnell, Botsford & Co.,
Iron, Nails & Spikes.
YOUNGSTOWN, OHIO.

Iron.

NEW YORK.

T. D. HAZARD,
Successor to JONES & HAZARD,)
BROKER IN
NEW & OLD RAILS,
Foreign and Domestic
PIG IRON,
Wrought and Cast Scrap Iron
AND GENERAL METALS.
204 Pearl St., New York.

JAMES WILLIAMSON & CO.,
SCOTCH AND AMERICAN
PIG IRON,
No. 69 Wall St., New York.

U. O. CRANE.
BROKER IN
PIG IRON & METALS,
104 John St. New York.

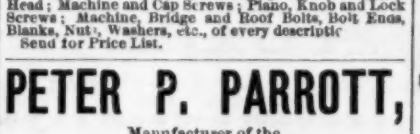
JOHN W. QUINCY,
98 William Street, New York
Dealer in
Anthracite & Charcoal Pig Irons,
OLD SCRAP and CUT NAILS.
Gibbs' Patent Lock Nut and Washer, and Fish Plates for Rail Roads.

BOONTON
CUT NAILS,
HOT PRESSED NUTS,
Machine Forged Bolts,
Washers.
Fuller, Lord & Co.,
BOONTON IRON WORKS,
139 Greenwich Street, New York.

Swedish Iron.
A Variety of Brands, including
UB HP NB 03
BARS suitable for Steel of all grades, Wire, Shovels, Hoes, Scythes, Carriage Bolts, Nail Rods, Tacks, &c.
CHARCOAL PIG IRON for Bessemer and Car Wheels.
MUCK BARS for Steel Smelting and Re-rolling.
SCRAP or BAR ENDS.
Direct Agency for N. M. HÖGLUND, of Stockholm, represented in the United States by
NILS MITANDER,
69 William St., New York.
ABBOTT & HOWARD, Boston, Mass. AGENTS: ALBERT POTTS, Philadelphia, Pa.

DANIEL W. RICHARDS & CO.,
Importers of and Dealers in
SCRAP IRON,
Pig Iron,
OLD METALS.
YARDS:
88 to 104 Mangin St., } Foot of Stanton St., E. R.,
71 to 79 Tompkins St. } NEW YORK.
OFFICES.
90 & 92 Mangin Street, }
178 Pearl Street, } New York.
30 The Albany, Liverpool, England.

B. F. JUDSON,
Importer of and Dealer in
SCOTCH AND AMERICAN
Pig Iron,
Wrought & Cast Scrap Iron,
English and American
HORSE SHOE IRON, &c.,
457 & 459 Water St., } NEW YORK.
and 235 South St., }



REYNOLDS & CO.,
145 EAST STREET, NEW HAVEN, CT.,
Manufacture
Iron and Steel Set Screws, Round, Square and Hexagon Head; Machine and Cap Screws; Piano, Knob and Lock Screws; Machine, Bridge and Roof Bolts, Bolt Ends, Blanks, Nuts, Washers, etc., of every description
Send for Price List.

PETER P. PARROTT,
Manufacturer of the
"CLOVE"
ANTHRACITE PIG
IRON.
At Greenwood Iron Works,
ORANGE CO., N. Y.

Iron.

NEW YORK.

HARRISON & GILLOON
IRON AND METAL DEALERS,
558, 560, 562 WATER ST., and 302, 304, 306 CHERRY ST.,
NEW YORK,
have on hand, and offer for sale, the following:
Scotch and American Pig Iron, Wrought, Cast and Machinery Scrap Iron, Car-Wheels, Axles and Heavy Wrought Iron; also old Copper, Composition, Brass, Lead, Pewter, Zinc, &c.

OXFORD IRON CO.,
Cut Nails and Spikes,
R. R. Spikes, Splice Bars and Nuts and Bolts,
81, 83 & 85 Washington, near Rector St, N. Y.
JAMES S. SCRANTON, Agent.

FLUOR SPAR
In Lump, Crushed, Ground, or extra fine, for sale by pound, barrel, ton or car load, by
SCHWEITZER MFG. CO.,
57 Reade St., N. Y.

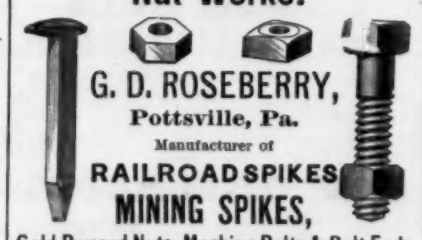
DAVID CARPENTER & SONS,
Commission House
IRON AND STEEL,
Hot Pressed Nuts, Bolts & Washers,
402 Water Street, - - New York.
SCRAP IRON PURCHASED.

J. C. LEFFERTS,
Metal Broker,
PIG, RAILROAD & SCRAP IRON
241 PEARL STREET, NEW YORK.

ESTABLISHED 1840.
PETER TIMMES' SON,
Manufacturer and Galvanizer of
Wrought, Ship, Boat, Dock & R. R. SPIKES, RIVETS, NAILS, &c.
Nos. 281, 283 & 285 N. 6th St.,
Near junction of N. 2d St., Brooklyn, E. D.

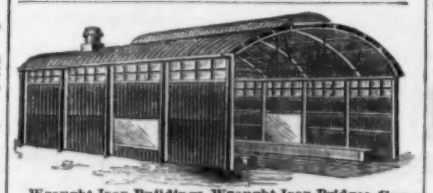
BURDEN'S
HORSE SHOES.
"Burden Best"
Iron.
Boiler Rivets.
Burden Iron Works, H. Burden & Sons
Troy, N. Y.

Pottsville Spike, Bolt and Nut Works.



G. D. ROSEBERRY,
Pottsville, Pa.
Manufacturer of
RAILROAD SPIKES
MINING SPIKES,
Cold Pressed Nuts, Machine Bolts & Bolt Ends

COLEMA & BRO.,
Manufacturers' Agents and Brokers
PIG IRON, NAILS, RAILS, NUTS,
And General Railroad Supplies.
LOUISVILLE, KY.



Wrought Iron Buildings, Wrought Iron Bridges, Corrugated Iron Roofs, Shutters, Doors, Flooring, &c. Corrugated Sheets of all sizes manufactured by Moseley Iron Bridge and Roof Co., No. 5 Dey St., N. Y.

Iron.

PITTSBURGH.

PENNSYLVANIA IRON WORKS.
EVERSON, MACRUM & CO.
Pittsburgh, Pa.,
Manufacturers of every description of
Bar, Sheet and Small Iron,
Make a specialty in
Fine and Common Sheet Iron.

W. P. TOWNSEND & CO.,
Manufacturers of
WIRE and
Black and Tinned Rivets
OF CHOICEST CHARCOAL IRON.
Rivets any diameter up to 7-16 inch and ANY LENGTH required.
19 & 21 Market St., PITTSBURGH PA.

A. G. HATRY,
Manufacturers' Agent and Broker.
Bar, Sheet, Tank, Boiler, Angle, T, and Railroad Iron,
Nails & Spikes, Steel & R. R. Supplies.
PITTSBURGH, PA.

SHOENBERGER & CO.
Manufacturers of
CUT NAILS,
AND
Spikes,
HORSE AND MULE
SHOES,
Horse Shoe Bar, &
SHEET IRON.
Goods warranted equal to any in the Market. Send for Circulars in regard to "PICKED NAILS."
PITTSBURGH, PA.

Boston Rolling Mills
Manufacture extra quality small Rods, from best selected Scrap Iron.
Swedish and Norway Shapes,
NAIL and WIRE RODS. Also,
Horse Shoe Iron & Hand Made Horse Shoes.
BOSTON ROLLING MILLS,
W. R. ELLIS, Treasurer.
Office, 17 Batterymarch St., Boston

Warren Boiler Works,
Phillipsburg, N. J.
Steam Boilers,
Tanks,
Heaters,
Stacks, Pipe,
And all Wrought Iron work made to order.
ESTIMATES GIVEN ON CONTRACT WORK FOR FURNACES AND ROLLING MILLS.
A Liberal Discount on Boilers to Engine Builders.
Prices given on application. Address,
TIPPETT & WOOD.

"PEMBROKE"
Round, Square & Flat Iron.
"FRANCONIA" Shafting & Bar Iron.
Extra quality when great strain or superior finish is required. Also, Irons for ordinary work, like the "ENGLISH REFINED."
WM. E. COFFIN & CO.,
No. 8 Oliver Street, Boston.
New York Agents,
JEVONS STROUD & CO., 104 John St., N. Y.

ASA SNYDER,
Importer of Scotch, and Furnace Agent for the celebrated Anthracite and Hot and Cold Blast Charcoal
PIG IRONS.
OFFICE AND YARD:
1008, 1010, 1012 and 1014 Cary S reet, Richmond, Va.
Orders for Scrap Iron filled.

L. S. TAYLOR. WM. MITCHELL. C. H. POND
TAYLOR, MITCHELL & POND,
Manufacturers of
MERCHANT IRON
And Light T Rail.
Massillon, Ohio.

FOUNDRY FACING CO.
Miners and Manufacturers of Welsh's
Celebrated XX Mineral Facings
And Dealers in FOUNDRY SUPPLIES.
P. O. Box. 4536.
121 Chambers Street, NEW YORK

Phoenix Brass & Iron Foundry
EDWARD GOUGH, Allentown, Pa., Manufacturer of
Soft & Hard Chill Rolls, Sand Rolls & Pinions.
Hard Chill Rolls are guaranteed to be uniform and made to any depth of chill, to suit.
The only manufacturers of Soft Chill Rolls in the United States.

The Preparation of Sand Molds.

That the art of casting metals was understood in some degree at a very ancient period is a well established fact. As to the methods employed by the founders of such remote times we have very little information. In the book of First Kings the statement is made that Hiram, of Tyre, "cast two pillars of brass, of 18 cubits high apiece," "and he made two chapiters of molten brass (bronze) to be set upon the tops of the pillars." "In the plain of Jordan did the king cast them in the clay ground, between Succoth and Zarthan." From such evidence it has been assumed that the Tyrian founder employed molds of sand or loam, such as we use at the present time. Much more decisive, however, is the evidence given by molds dug up in various parts of England, and supposed to have been used in casting Roman coins. They are of the size of a Roman denarius, and are made of smooth pot or brick clay. Sometimes they have been found in great numbers and joined together side by side on one flat piece of clay, as if it was the custom of the founder to cast a large number of them at once. Some of them have an impression of the head of the emperor Severus.

There is not much opportunity, then, for antiquarian research in this department of industry; the fact is, that molding and founding are arts which, if not of modern discovery, have certainly received their greatest development during the last 50 years. The improvement in these branches has not been so extensive, however, as in many of the other useful arts. A description of the method of preparing the sand mold, taken from a cyclopedia, published in the first part of this century, will give some idea of the state of the industry at that time. The frames or flasks were provided with handles to lift by, and iron points fastened on one flask and extending into holes in the other, "for ascertaining when they fit each other." The under flask was set on a board, and then filled with sand, which was afterward rammed tightly into it. The workman next took the pattern and pressed one-half of it into the sand and smoothed the sand up the sides of the pattern with a trowel. He then set the empty flask over the other, putting the points before referred to into the holes, and after sprinkling some burnt sand over the sand in the under flask, he filled the upper one with molding sand and rammed it down. He next, with a piece of wood, made a hole through the sand to pour the metal through. The upper flask with the sand in it was then lifted off and the pattern lifted out and the flask placed together again. Heavy weights were placed on them to keep them down.

As far, then, as the preparation of the mold is concerned the method just described is not so remarkably different from that employed in many of our modern foundries. The improvements in founding, in fact, which have been generally adopted have mainly been made in other portions of the process. Dr. Ure treats the progress which has been made in molding under three heads:

1st. Methods by which the labor of making molds in the sand may be reduced.

2d. Improvements in the mode of constructing patterns and molds.

3d. The manufacture of metallic molds.

Notwithstanding the fact that in many of our smaller works the greater number of the inventions relating to molding have been disregarded, the progress of the art of molding during the last twenty-five years has been very marked. We cannot here touch on but one of the departments of improvement specified above, viz., the process of actually making the mold. And here, again, several large classes of inventions must be disregarded, such as devices for sweeping the molds for large flywheels, contrivances for preparing the molds for the casting of gear wheels without patterns, methods of removing the pattern from the mold, etc. We propose to sketch simply the progress which has been made in preparing the mold where full patterns are used. In such cases the ordinary method is well understood and does not here need description.

The principal object which inventors have had in view in improvements in preparing the mold is the devising of some means of dispensing with the manual process of ramming the mold. The ends sought in attaining this object have been economy and the production of a greater and more uniform density throughout the sand. Among the earliest devices for this purpose was a plan embodied in two patents issued in England in 1835, one to an American, for compressing the sand by means of a piston, which in both cases carried the pattern and forced it into the sand in the flask. Each half of the mold was formed in a separate flask, and a half pattern was used in each instance. In one case the piston was hollow, and moved in a piston box placed under the half flask. When the piston was at its lowest point the pattern was attached to it, sand was thrown in, and the piston was then driven up by a cam or other equivalent arrangement, raising the pattern and sand up into the flask, in which a mold was thus formed. The piston then descended, and by a suitable arrangement the pattern was withdrawn. The American's patent was similar, except that after the mold was formed the pattern descended into the piston before the latter descended itself. A very similar patent was taken out in this country in 1850 by Mr. John P. Broadmeadow, of Bridgeport, Conn. Modifications of the idea involved in these inventions were afterward made, some of them being quite elaborate. In 1863 a method was introduced by a firm of Scotch iron founders, in which the half mold box was laid on a table and was filled with sand. An excavation was then roughly scooped in the sand approximating in form to the pattern. The latter was then pressed into the mold from above by means of a hydraulic press, eccentrics, levers or screw. In all these cases the pattern was surrounded with a piston plate fitting the sides of the flask. In 1864, a formidable apparatus was patented by an English founder. In his invention an upright steam cylinder was placed in a suitable frame, and by means of its piston lifted the flask itself with the sand up to the pattern, which was sustained above by a disc surface, supported by stem depending from a beam fixed to uprights which arose from the frame of the steam cylinder itself. An elaborate outfit was provided for this machine, for removing and changing the mold boxes, etc. In 1867, a New Hampshire inventor patented a device by which the flask and sand was carried automatically into a position to receive the impression of the pattern, which was forced into the sand by a plunger driven by a lever, and then withdrawn, after which the flask was carried out of the machine. During the same year a curious device was patented by a Scotch iron firm. It consisted of two large tubes, one within the other, both of which revolved around the same shaft. The inner tube was hung loosely on the shaft, but the outer one was hung on eccentrics forged upon the shaft. On the outer side of the inner tube were placed the patterns, and on the inner periphery of the outer tube were attached the flasks with the sand. It will be seen that the motion of the inner frame or tube was circular, but the motion of the outer frame was eccentric causing the molding boxes to be pressed against the patterns attached to the inner frame, when the shaft revolved, thus forming the mold.

The Scotch founders seem to have particularly fancied the pressure method, for most of such improvements emanated from them. In 1864 a Lanark man introduced yet another method of applying the same principal. In his invention the pattern was laid on a movable table, and over this was placed the flask, into which sand, more than enough to fill it, was afterward placed. A cover was then forced down over the flask, which was firmly held in position, and the movable table pressed the pattern up into the flask. All of these methods, however, only enabled the founder to make one-half of the mold at once. Apparently, the only effort ever made to shape the whole mold at once by compression dates back to 1854. In this case the mold was made of the usual form, but with movable bottoms capable of being raised within the box. The boxes were filled with sand and the pattern placed in position and the flask closed. The top and bottom were then pressed together with considerable force.

Another method, which has formed the basis of a separate class of inventions, consists in replacing the manual ramming process, not by pressing apparatus but by mechanical rammers. The first proposition of this kind was made by two parties, residents of Manchester, England, in 1857, but the invention was not patented. The machinery proposed in this case consisted of a frame to which an up and down motion could be imparted, and to which were attached a series of tubes into which the handles of the rammers fitted. The frame was driven by steam. The molding box was placed on a traveling carriage, to which a lateral to and fro motion was given, or it was made to rotate on a center, the object in either case being to bring every part of the box under the rammers. The handles of the rammers which fitted in the tubes had springs to prevent a rigid blow being given to the rammer. Another improvement was introduced during the next year, differing from the above principally in the means by which rammers were driven. In this case the latter worked in guides, and were connected by rods to and were actuated by cranks or eccentrics fixed upon an overhead shaft. The flask was placed on a traveling table, and thus every part of it came under the action of the rams.

In 1861 an English iron founder patented a peculiar and complicated device, in which the frame carrying the rams revolved on a horizontal axis, and the whole process was finished at one stroke. The pattern, which in this case must be of small depth, was placed on a plate, which fitted the flask. Around this plate was a frame or rim, which could move up and down. When up it projected above the plate as a raised edge. When down its upper edge was flush with the top of the plate. Upon this frame, which had previously been raised, was placed and securely attached the flask. The ramming frame was provided with a sufficient number of rammers to fit all the spaces between the bars in the flask. The rim which surrounded the pattern plate was supported below by a mechanism so constructed as to communicate with the revolving ramming frame and to be moved by it in the following manner. The ramming frame having been raised, the rim also rose by means of the connection just referred to. The flask was then placed on the rim, the pattern plate supporting the pattern having been previously placed in position. Sand was then placed in the flask covering the pattern, and the ram is descended with great force. The rim and molding box simultaneously descended, so that the top of the rim and bottom of the box was flush with the top of the plate, as above described. Thus the sand was thoroughly compressed, and when the ram was raised again the box also rose, freeing the pattern from the mold.

A simpler arrangement was proposed by Mr. Archibald Gibb, of Scotland, the rammers in this case being vertical and being actuated as in a preceding case, by cams or eccentrics on an overhead shaft. The ram fitted the space between the bars of the flask, and the latter was placed on a traveling table or carriage, which was automatically moved forward with an intermittent motion, so as to bring the subdivisions of the flask successively under the rammers. The rods connecting the rammers with the shaft above were capable of being lengthened or shortened so as to vary the force of the blow.

An interesting but complicated invention was presented at the English patent office in 1866, but never received more than a provisional protection. The mold box was laid on a table composed of two halves, which could be separated from each other. The pattern, supported by a vertical rod or tube worked by a lever, was then passed between the halves of the table up into the flask, after which the halves of the table closed together, so as to support the pattern. Sand was next supplied, and a roller moved over the top, compressing the sand and raising a ram as it moved. The roller then moved back again, and as it finished its course automatically released the rammer, which fell on the sand. This alternation of rolling and ramming could be repeated as often as necessary.

A curious (possibly not more so than useful) invention was introduced in 1868. It consisted in arranging a series of mechanical rammers, which were made to act in succession on the sand. The first rammer, or set of rammers, corresponded more or less closely in configuration with the pattern, while in the following rammer, or sets of rammers, the shape approached more and more to a plane surface. Each rammer, or set of rammers, was hung on one side of a polygonal framework, which revolved so as to bring each set successively over the flask. The revolution was automatically caused by the rising or falling of the rammers.

Special contrivances for special purposes have been devised from time to time, some of them very ingenious. In two kinds of molding—viz., pipe and gear wheel molding—the plans have been most numerous. They generally dispense with a pattern altogether, or use only a segmental pattern of the object to be molded.

One curious and intricate contrivance—the invention of a Frenchman—deserves to be noticed rather on account of its peculiarity than from any other reason. It was introduced in 1859, and is in principle a ram, or, as the inventor terms it, a beater. In its operation a bed of sand is laid on the molding plate, which has a backward and forward movement on rollers. Upon the sand is laid the pattern of the article to be reproduced, that side whose impression is to be taken being uppermost. Over this is placed the case, or drag, which is then filled with sand in the ordinary manner. Upon this is placed another rectangular frame, without top or bottom, and one-third inch in depth, and finally, over this a similar frame about 1¼ in. in depth. The whole is filled with sand. The beater is a square metallic or wooden block or frame, which is arranged so as to slide up and down between two upright standards. This beater had four faces, and was hung upon a horizontal axis, around which it could be turned so as to present any particular face to the sand. One face was armed with 25 fingers, arranged in three rows, the longest being about four inches in length. Another face was shaped like a hand beater, the third face was a flat surface, and the fourth was provided with discs projecting about one-third of an inch from the face, and was intended to act as a finishing face. The flask moved forward under the beater and the block being turned so that the fingers pointed downward, the beater was made to descend on the sand a number of times, the flask being moved backward and forward, so that the fingers worked up the sand. The operation was stopped presently and the second face brought around and several blows given. This operation being finished the top frame was removed and the sand leveled down to the top of the second frame, which was then removed also. This left a projecting body of sand about one-third of an inch deep. The third face was turned downward and about 15 blows given, and finally about a dozen blows given with the finishing face.

The credit, however, of producing an entirely original and thoroughly novel invention must be ascribed to a Pennsylvania inventor, who gravely suggests that the pattern, sand, etc., be placed in a mold and that the whole be let drop on a hard bed, thus forming the mold.

The late Mr. Ralston, of San Francisco, was a man of peculiar business habits. When the question of locks for the Palace Hotel was under discussion, one day, a plain, common looking man presented himself and asked if he was addressing Mr. Ralston, and being answered in the affirmative, said: I hear you want locks for the hotel. I am a locksmith and can make them for you." Mr. Ralston, looking up, said in his quick, sharp way: "I want 4000 locks, no two alike, no one key to open another lock, and three extra keys for each lock—16,000 in all; and I want them in three months." "All right; I can do the job." "Have you any means to carry out the contract?" "Not a cent." "Then how do you expect to be able to take it?" "I expect you to lend me the money." Mr. Ralston looked at the man, gave him one searching glance, and, seeing in him the right stuff, said, "All right; I'll do it. Come here to-morrow morning, sign the contract, and get the money." The man carried out the contract to the letter.

The great American inventions, which have been adopted all over the world, are the following: 1. The cotton gin, without which the machine, spinner and the power loom would be helpless. 2. The planing machine. 3. The grass mower and grain reaper. 4. The rotary printing press. 5. Navigation by steam. 6. The hot air (caloric) engine. 7. The sewing machine. 8. The india rubber industry. 9. The machine manufacture of horse shoes. 10. The sand blast (for carving). 11. The gauge lathe. 12. The grain elevator. 13. The artificial manufacture of ice on a large scale. 14. The electro-magnet, and its practical application, by Henry and Morse. 15. The only successful composing machine for printers.

Iron.

CLEVELAND.

CLEVELAND ROLLING MILL CO.,

MANUFACTURERS OF

BESSEMER STEEL RAILS,

Steel Plates and Forgings, Railroad Iron, Merchant Bar, Beams, Girders, Splices, Bolts, Spikes, &c., &c.

Office, Nos. 99 and 01 Water St., CLEVELAND, O.

A. S. STONE, Pres. H. CHISHOLM, V. P. & Gen. Supt.
E. S. PAGE, Sec'y.

Cleveland, Brown & Co.

IMPORTERS, MANUFACTURERS AND DEALERS IN

IRON AND STEEL,

HORSE SHOES, HORSE NAILS,
NORWAY NAIL RODS,
NAILS, SPIKES,
"Standard Taper" Axles & Swedes Iron.
WINDOW GLASS,
Wrought Iron Pipe and Boiler Tubes.
Chains, Rivets, Nuts, Washers, and Heavy Hardware Generally.

25 27, 29 & 31 Merwin Street,
CLEVELAND, OHIO.

OLD DOMINION
Iron and Nail Works Co.,

RICHMOND, VA.

R. E. BLANKENSHIP, Commercial Agent, Manufacture

NAILS AND BAR IRON.

Bands, Scrolls, Horse Shoe Bars, Nut and Rivet Iron, Spike Rods, Shanting, Bridge Bolts, Ovals, Half Ovals, Half Rounds, &c.

The Iron-Masters'
Laboratory.

Exclusively for the Analysis of Ores of Iron, Pig and Manufactured Iron, Steels, Limestone, Clays, Slags & Coal for Practical Metallurgical Purposes.

No. 339 Walnut Street, Philadelphia.

J. BLODGET BRITTON.

This Laboratory was established in 1866, at the instance of a number of practical Iron-masters, expressly to afford prompt and reliable information upon the chemical composition of the substances above mentioned, for melting and refining purposes. The object being to make it at once a convenient, practically useful, and comparatively inexpensive adjunct to the Furnace, Forge and Rolling Mill.

CHARGES TO IRON WORKS.

For determining the per cent. of Pure Iron in an ordinary Ore	$4 00
For the per cent. of Pure Iron, Sulphur and Phosphorus in do	12 50
For each additional constituent of usual occurrence	1 50
For those of unusual occurrence or difficult to determine, the charge must necessarily depend upon circumstances.	
For determining the per cent. of Sulphur and Phosphorus in Iron or Steel	14 00
For each additional constituent of usual occurrence	6 00
For the per cent. of Carbonate of Lime, and Insoluble Silicious Matter in a Limestone	10 00
For each additional constituent	2 00
For the per cent. of Water, Volatile Combustible Matter, fixed Carbon, and Ash in Coal	12 50

or determining the constituents of a Clay, Slag, Coke, or of an Ash of Coal the charges will correspond with those for the constituents of an ore.
For a written opinion or letter of instruction the charge must necessarily depend upon circumstances.
Printed instructions for obtaining proper average samples for analysis furnished upon application.

SCHOOL OF MINES,
COLUMBIA COLLEGE,

East 49th Street, NEW YORK.

FACULTY:

F. A. P. BARNARD, S. T. D., LL. D., President.
T. EGLESTON, Jr., E. M., Mineralogy and Metallurgy
FRANCIS L. VINTON, E. M., Mining Engineer.
C. F. CHANDLER, Ph. D., Analytical and Applied Chemistry.
JOHN TORREY, M. D., LL. D., Botany.
CHARLES A. JOY, Ph. D., General Chemistry.
WILLIAM G. PECK, LL. D., Mechanics and Mining Surveying.
JOHN G. VAN AMRINGE, A. M., Mathematics.
OGDEN N. ROOD, A. M., Physics.
JOHN S. NEWBERRY, M. D., Geology and Palæontology.

The plan of this school embraces a three years' course for the degree of ENGINEER OF MINES, or BATCHELOR OF PHILOSOPHY.

For admission, candidates for a degree must pass an examination in Arithmetic, Algebra, Geometry and Plain Trigonometry. Persons not candidates for degrees are admitted without examination, and may pursue any or all of the subjects taught. The next session begins October 2nd. The examination for admission will be held on June 23rd and September 29th, 1871. For further information and catalogues, apply to

DR. C. F. CHANDLER,
Dean of the Faculty.

WALLACE & HUMPHREY,
Analytical Chemists,

118 Walnut St., PHILADELPHIA.

Special attention given to analysis of Iron and Steel.

MAYNARD & VAN RENSSELAER.
CONSULTING
Mining and Metallurgical
ENGINEERS,

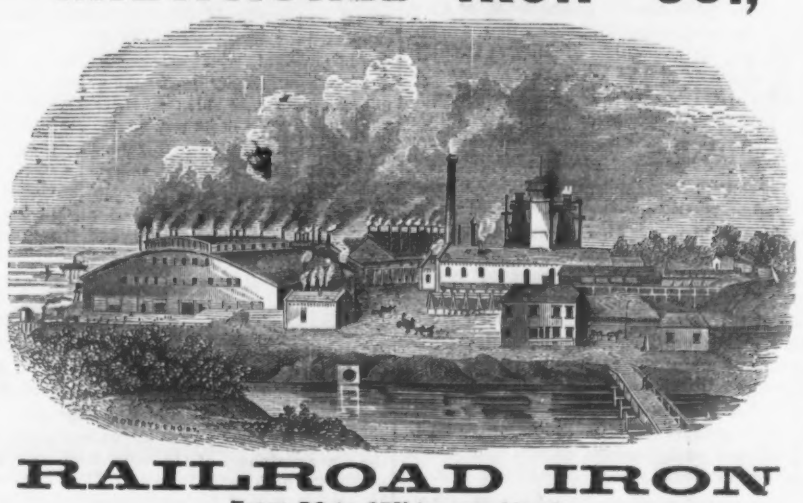
Experts in Iron and Analytical Chemists.
26 1-2 Broadway, NEW YORK,
George W Maynard. Schuyler Van Rensselaer.

Edward J. Hall, Jr.
BLAST FURNACE ENGINEER.

452 Franklin St., BUFFALO, N. Y.

Iron.

MILWAUKEE IRON CO.,



RAILROAD IRON

From 30 to 65 Lbs. per Yard.

Re-Rolling done on short notice.

PIG IRON.

BEST No. 1 FOUNDRY IRON constantly on hand and for sale in car-load or larger lots, at lowest market price.

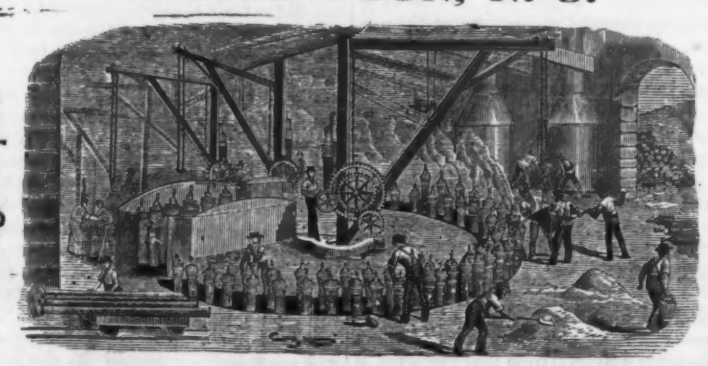
Merchant Bar Iron.

A FULL ASSORTMENT—SUPERIOR QUALITY.

Address all correspondence to

MILWAUKEE IRON CO.,
MILWAUKEE, WIS.

JOHN McNEAL & SONS,
BURLINGTON, N. J.



Flange Pipes. General Foundry Work.

CAST IRON PIPES

FOR WATER AND GAS.

John H. Reed & Co.,
IRON MERCHANTS.

And Agents for

BAY STATE IRON CO.

Manufacturers of and Dealers in

Homogeneous Boiler and Fire Box Plates.

GOLD MEDAL. BAY STATE IRON Co. FOR HOMOGENEOUS BOILER PLATE. BOSTON 1874.

Plate, Sheet, Pig and Railroad Iron.

Wrought Iron Girder, Channel & Deck Beams.
ANGLE & T IRON, BOILER & TANK RIVETS,
Lap-welded Iron Boiler Tubes,
Wrought Iron Steam & Gas Pipe.

OFFICES,

2 Pemberton Sqr., Boston, Mass.

Baltimore STEEL HOE Works.
O. H. HICKS & CO.

Manufacturers of the

Lockwood Hoe,

Send for Sample and Price List.

BALTIMORE, MD.

EDWARD PHELAN,

Surviving Partner of W. F. SHATTUCK & CO.,

No. 113 Chambers and 95 Reade Streets, New York,

MANUFACTURER OF AMERICAN HARDWARE.

Coes & Taft's Pat. Wrenches.
Axe, Pick, Sledge & Hammer Handles.
Gimlets and Gimlet Bits.
Augers and Auger Bits.
Cocoa Nut Dippers
Wire Seives.
Scale Beams.
Patent Tap Borers.
Cortlandt Horse Nails.
Maguire's Wr't Iron Goods.
Shattuck's Platform Counter Scales.
Yaw's Cow Bells.
Axes, Picks and Hatchets.

Iron.

WHEELS AND AXLES MADE OF THE BEST STOCK AND IN THE MOST careful MANNER. FURNISHED SEPARATELY OR "FITTED" MAKING COMPLETE SETS.

TAYLOR IRON WORKS
ON THE LINE OF THE CENTRAL R.R. OF NEW JERSEY
HIGH BRIDGE, N.J.
CAR WHEELS & AXLES
DRAW HOOKS AND FORGINGS.
LEWIS H. TAYLOR PRES'T.
S. P. RABER SUP'T. JAS. H. WALKER SEC'Y & TREAS.
NEW YORK OFFICE 93 LIBERTY ST.

STEEL TIRED WHEELS MADE UNDER SAX & KEAR'S PATENT FOR LOCO TRUCK AND TENDER AND PASS'R CAR SERVICE.

ATKINS BROTHERS,
PROPRIETORS OF THE
Pottsville Rolling Mills & Pioneer Furnaces
POTTSVILLE, PENNSYLVANIA.

Having introduced New and Improved Machinery into their Rolling Mills, and manufacturing all their Iron from the ore, and also doing all Machine Work and Repairs in their own shops, they are enabled to produce

RAILROAD IRON

Of uniform quality, unsurpassed for strength and wear, and of any required length.
Address the Proprietors Pottsville, Pa.

The Britannia Ironworks Company, Limited,
Middlesbro' England,

MANUFACTURERS OF

ALL DESCRIPTIONS OF IRON RAILS

Surplus Stocks of Various Sections always on hand.

London Office: W. G. FOSSICK, 6 Laurence Pountney Hill, E. C.

Weekly Output, One Thousand Tons.

HEATON & DENCKLA,
HARDWARE COMMISSION MERCHANTS,
PHILADELPHIA.

Branch Office, 97 Chambers and 81 Reade Streets, N. Y.

AGENCIES:

Mallory, Wheeler & Co.
American Screw Co.
Douglas Axe Mfg. Co.
Stuart, Peterson & Co.'s Castings.
Morton & Bremmer's Balances.
Foster's Horse Nails.
Anchor Brand Nails.
Lewis' Anvils and Chains.
"Eagle" Trace Chains.
Royer's Ford Sad Irons.
Gaylord Mfg. Co.'s Locks.
Plymouth Mill Rivets.
Union Mfg. Co.'s Drilled Butts.
Western File Works.
Philadelphia Carriage Bolts.
Aiken's Saw Sets.
Cast Steel, Octagon, Flat and Square, &c., &c.

BAEDER, ADAMSON & CO.,
Manufacturers of
Sand and Emery Paper and Emery Cloth

(Also, in Rolls for machine work.)

GROUND EMERY, CORUNDUM AND FLINT,
Glue & Curled Hair, Cow Hide Whips.

STORES:

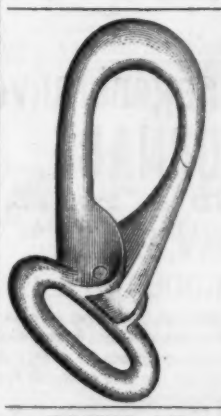
PHILADELPHIA, 730 Market St.,
NEW YORK 67 Beekman St.,
BOSTON, 143 Milk St.,
CINCINNATI, 92 Main St.,
CHICAGO, 182 Lake St.

BIRMINGHAM SCREW CO., Limited.

ALFRED FIELD, President.

The Screws of this company are imported only in small, limited quantities.

ALFRED FIELD & CO.,
Sole Importers,
93 Chambers and 75 Reade Streets, N. Y.



Middletown Tool Co.,
MIDDLETOWN, CONN.

Manufacturers of

The Celebrated "Baldwin" Plane Iron.
HENSHAW'S SNAPS
Greatly Improved in Style and Pattern.
HART, BLIVEN & MEAD MFG. CO., Agents
18 & 20 Cliff Street, N. Y.

JOHN CRANE, Agent, 103 Chambers St., N. Y.

GREENSBORO' HANDLE WORKS.

Manufacturers of SPOKES and CARRIAGE WOOD WORK, AXE, PICK, German and American SLEDGE and other Handles.

Send for Catalogue and Price List.

JAMES C. HAND & CO.,
Commission Merchants,
PHILADELPHIA.

AGENTS FOR THE SALE OF

PIG IRON, Wm. Penn, Norristown and Reading Furnaces.
WM. JESSOP & SONS' Cast Steel, &c., &c.
READING NAIL AND IRON CO.'S (Crescent Brand) Nails, Brads and Spikes.
BARROW, SAVERY & CO.'S Tinned, Enameled and Plain Hollow Ware, Medium and Cast Iron Hollow Ware, Sad, Tailors' and Laundry Irons, Fire Dogs, Wagon Boxes, Savery's Patent Combined Enameled Water Cooler and Refrigerator, &c., &c.
PENNSYLVANIA CORUNDUM CO.'S Corundum in Casks and Packages.
WASHINGTON MILLS EMERY CO.'S Best Turkish Emery in Casks and Packages
FISHER & NORRIS' Patent American Anvils and Vises.

New Patents.

We take from the records of the Patent Office at Washington the following specifications of certain patents lately issued, which will be found interesting:

IMPROVEMENT IN TURNING BESSEMER CONVERTERS.

Specification forming part of Letters Patent No. 167,077, dated August 24, 1875, issued to William F. Durfee, of Philadelphia, Pa.:

A radial piston is attached to one of the axes of Bessemer converters, inclosed in a circular casing attached to the frame work or supports upon which the converter rests, in such wise that a pressure of water or steam may be brought to bear upon one side or other of the piston at will, and thus the piston, and with it the converter, to the axis of which it is attached, be moved.

Figure 1 is a vertical longitudinal section; Fig. 2, a transverse vertical section; Fig. 3, a partial section; and Fig. 4 is an elevation

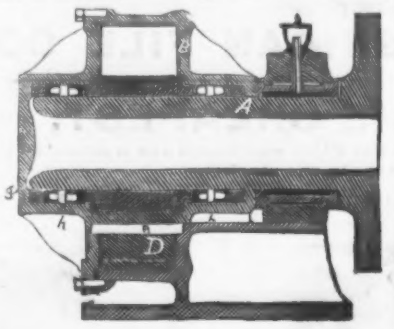


Fig. 1.

showing the relations of the apparatus to a converter.

A is the axis of the converter; B, the cylinder in which the piston moves; C, the piston, which is shown with a hub or sleeve keyed on to the axis A. D is the abutment of the cylinder, against which the water or steam acting upon the piston reacts. This abutment may be held in place in the cylinder by the tongue *d* and bolt *e*, as is shown in Figs. 1 and 2, or it may be fitted into the cylinder as is shown in Fig. 3, and be held in place by screw bolts, as will be well understood. *f f* are the inlet and

Fig. 2.

outlet passages for the water or steam by which the piston is moved, and *g*, Fig. 1, is an outlet for any water which may chance to pass by the packing between the axis A and the cylinder. The packing between the axis and the cylinder consist of double cup leathers, the effective operation of which may be secured by streams of water or steam of the same pressure as is used in the cylinder B, which may be

Fig. 3.

applied to the insides of the cup leathers through small holes at *h h*, Fig. 1. The packing of the piston and abutment may be effected by any of the modes commonly used, a good mode being to use metal packing held to its place by springs, and forced to a tight joint against the various surfaces by pressure of the water or steam in the cylinder, let in behind the packing by suitable openings, as at *i i*, Fig. 2.

The converter turns on bearings made of Babbitt or anti-friction metal; and in such cases the attachment of the piston C and abutment D is made to the axis A, and then run the anti-friction metal into the lower box of the journal or axis, so as to cause the abutment

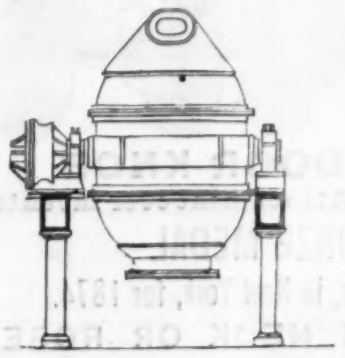


Fig. 4.

D and the sleeve of the piston C to act as part of the bearing of the converter, which can be the more readily done when, as in the plans shown in the drawings, the cylinder B is attached directly to the beam upon which the journal boxes of the converter rest.

Claim.—1. The combination, with the axes of Bessemer converters, of partially rotating pistons, working in cylinders or segments of cylinders attached to a suitable support, whereby, through the application of suitable pressure upon said pistons, the converters may be turned or tipped.

2. The combination of radial pistons C, attached to the axes of Bessemer converters, with cylinders B and abutments D, attached to the supporting frame work in which the converters move, and with suitable pipes *f f*, for conducting fluids and vapors, under pressure, to the cylinders, for the purpose of turning or tipping the converters.

The Katahdin Iron Works.

BANGOR, MAINE, Sept., 20th, 1875.

To the Editor of The Iron Age: DEAR SIR—An article in a recent issue of your paper on the Iron Industries of Maine, incorporating a letter written by me some two years ago, gives such an inadequate idea of the present condition of affairs at the Katahdin Works that I venture to forward a brief account of the existing state of affairs there:

The works are on Pleasant River, about 50 miles northwest of Bangor. The prevailing rocks in the neighborhood are a series of mica, schists and clay slates belonging to the older formation, with a general bend from northeast to southwest.

There runs across the country at right angles to the general formation a vein, apparently thrown up through the overlying rocks, of a syenitic rock, containing iron, mica, sulphur and feldspar, which decomposes readily by the action of air or water. The water of springs bubbling up through this vein becomes highly impregnated with sulphate of iron, which is precipitated on the surface in the form of a brown ochreous deposit gradually forming layers of ore of great thickness, conforming to the general shape of the surface of the mountain. The ore has been found hitherto in beds of about three to six feet in thickness, but a new deposit was discovered this spring of remarkable depth. Beginning at the lowest point of the bed on the hill side the depth of the ore was about two feet, gradually deepening as the hill rises till, as now worked, it presents a face of 15 feet thick of solid ore covered only with a few inches of soil, with the hill rising about 45°. A tract of some 10 acres has already been cleared of the growth of forest trees upon it, and the ore found at every point.

The following is an analysis of the raw ore by J. B. Britton, Esq., from the old beds:

Susquioxide or Iron	75·95
Water and Organic Matter	22·34
Silica	·17
Sulphuric Acid	·69
Phosphoric Acid	·14
Alumina	·07
Lime	·16
Oxygen and Loss	·48
	100

The roasted ore by the same authority gave:

Metallic Iron	68·51
Sulphur	·21
Phosphorus	·08

The ore from the new bed above described seems to have more silica and sulphur and less phosphorus. Two analyses recently made of this ore gave:

Silica	4·24	Silica	4·30
Sulphur	0·43	Sulphur	0·50
Phosphorus	0·27	Phosphorus	0·25

On roasting, however, with free access of air the sulphur readily escapes, the samples of the iron made from roasted ore showing but a trace of sulphur. The roasting is accomplished by piling the ore to a hight of five to six feet upon about a foot and a half of wood and setting fire to the pile, which burns slowly, the sulphur escaping as white fumes of smoke, and the ore changing from a brown to red or vermillion color, and is so free from any grit that it is ground and bolted, and put upon the market as the "Katahdin" mineral paint, being an almost chemically pure oxide of iron. From the ore bed the ore is drawn to the furnace a half mile distant, and run through a system of washrooms, where it is subjected to action of running water, and thence to the tap house. The lime rock used for flux contains—

Carbonate of Lime	56·89
" Magnesia	10·60
" Iron	5·54
Silica	22·40

The charge is 25 bushels charcoal, 700 lbs. roasted ore, 50 lbs. limerock, and 20 lbs. cinder—giving an open grained foundry iron of very great softness, fluidity and strength. With this charge the percentage of silicon in the iron is found to be higher than desirable, and it has been so far impossible to reduce the amount—a curious result, when it is remembered the ore itself is comparatively free from sulphur. The pig iron made is sold to machinists and stove makers through New England, and to New Jersey and Pennsylvania parties for Siemens and Bessemer steel.

The furnace stack is 35 ft. high, 9 ft. bosh; hearth, 32 in., 5 ft. 6 in. high, with four tuyeres. Blast pressure, one to one and a half pounds. Blast is heated by a Gifford hot blast with 28 syphon pipes, taking gas from open tunnel head; product, 11 to 12 tons daily. The blowing cylinders, two in number, are 5 ft. diameter and 5 ft. stroke, built substantially of iron, with a 6 ft. blast regulator, and driven by an iron turbine wheel with ample supply of water.

The property consists of 30,000 acres heavily wooded with white and yellow birch, beech, maple, ash and poplar, with furnace, coal sheds, kilns, shops, saw mill, office, store, hotel and houses. Wood is cut and hauled in winter, and burned in kilns holding 45 to 50 cords, yielding 45 to 50 bushels (2565 cubic in.) to cord. Wood costs $1·50 to $1·62 per cord cut and hauled to furnace, and 3c. per bushel is paid for burning and delivering. The ore yields 60 per cent. in furnace, and costs $1 per ton delivered for use. Limestone costs 75c. per ton of iron. Labor, $1·25 to $1·62 per day. The iron is now hauled 18 miles by teams to the railroad at mill, 30 miles from Bangor, but it is thought a railroad will be built to the slate quarries at Brownville next summer, six miles nearer than at present.

With the abundance of ore of such quality as this, and with unlimited supply of charcoal for years to come, and the nearness to the seaboard at Bangor, it would seem that the making of charcoal iron is destined to become a business of importance in this section of the State.

O. W. D., Jr.

USE THE BEST.

Pawtucket, R. I.

The American File Company have the exclusive right to use the Bernot process for cutting files By this method all the advantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing files and steel.

Goods of all known manufacturers have been repeatedly tested, and interesting tables have been compiled showing the working qualities of files made by different makers, and of files made from different steels, and with various shapes and angles of tooth Tuey have thus reduced the manufacture of files to an exactness and perfection with a uniformity of result, as they believe, never before attained. No file, foreign or domestic, that they have ever tested, has equalled the performances of their own goods taken at random from their stock. Their machines are capable of the most delicate adjustment, and can produce the very finest work known to the trade. Special files made to order. Prominent file manufacturers are having their best goods from our works.

Price lists and information furnished on application.

AMERICAN FILE CO., Pawtucket, R. I.

THE BEST IS THE CHEAPEST.

McCaffrey's Standard American Hand Cut Files and Rasps are warranted to do more work than any other files and rasps in the market.

SILVER MEDAL. TRADE MARK. HIGHEST PREMIUM.

PENNSYLVANIA FILE WORKS.

McCAFFREY & BRO.,

No. 1732, 1734 & 1736 North Fourth St., Phila.

Messrs. ARNOLD & CO., 310 California St., San Francisco, Sole Agents for the Pacific Coast.

ESTABLISHED 1848.

C. T. DRAPER & CO.
Sing Sing, N. Y.
Manufacturers of SUPERIOR
HAND CUT

FILES and RASPS
Made from Best
ENGLISH CAST STEEL.
Quality guaranteed by written warranty when required.

Eagle File Works. **Established 1857.**

Madden & Cockayne File Co.

(Late WHEELER, CLEMSON & CO.)
Manufacturers of the
Old and Well Known "WHEELER, MADDEN & CLEMSON" Brand of

FILES.

Middletown, Orange Co., NEW YORK.

WHIPPLE'S PATENT
Door Knob.

THE WHIPPLE DOOR KNOB

Is the only perfect Door Knob Attachment ever invented.

AWARDED A BRONZE MEDAL

At the American Institute Fair, in New York, for 1874.

NO SCREWS USED IN NECK OR ROSES.

Adjusts Perfectly to Doors of Different Thicknesses

WITHOUT THE USE OF RINGS.

The attention of Architects, Builders and Carpenters is specially desired. Circulars fully describing the advantages of this Knob, with Price List, sent on application to

The Parker & Whipple Co.,

WEST MERIDEN, CONN.,

Or 97 CHAMBERS STREET, NEW YORK.

L. B. HELLER. I. R. DENMAN.

L. B. HELLER & CO.,

Manufacturers of Celebrated

American Horse Rasps and Files.

OFFICE, 190 Market Street,
P. O. Box, 223. NEWARK, N. J.

W. C. DUYCKINCK,

Importer and Manufacturer of
Steam Water Gauges,
Pipe and Fittings,
Scotch Glass Tubes,
Tube Expanders,
Twist Drills,
Emery Wheels,
Pipe Fitters' Tools,
Moulders' Tools,
Blacksmiths' Tools,
Machinists Fine Tools
Forges,
Hammers,
Wheelbarrows,
Wrenches,
Jack Screws,
Vises,
Flue Brushes,
Waste,
Belting,
Hose,
Packing,
Stubs' Goods,
Hair Felt,
Polishing Felt,
Emery Cloth,
Hand Drills,
Iron Punches,
Iron Shears,
Files,
Governors,
Bolts,

Railroad & Machinists' Supplies.

SEND FOR PRICE LIST.

50 and 52 JOHN STREET, NEW YORK.

ELIAS G. HELLER. GEO. E. HELLER.
PETER J. HELLER. JOHN J. HELLER.

We invite the attention of the trade to our **Celebrated American Horse Rasps and Files.** These Rasps are made from the very best American Steel, all cut by hand, and we warrant them equal to any other make in the market. For the information of persons unacquainted with our goods, we will state that every File or Rasp manufactured by us, since our establishment in 1866, have been stamped "*Heller & Bros.*" though commonly called the "*Heller Rasp.*" All Rasps not stamped as annexed diagram are not genuine. We will send sample lot, if requested, and if not as represented they can be returned, or held subject to our order, free of all charges. For sale by the leading Hardware Dealers in the United States.

Putnam's Government Standard

FORGED

HORSE SHOE NAILS.

Manufactured from the best of **NORWAY** Iron, nd warranted to give entire satisfaction.

S. S. PUTNAM & CO.,
NEPONSET, MASS.

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila.

A. PARDEE & CO.,

303 Walnut St.,

PHILADELPHIA

MINERS AND SHIPPERS OF

Lehigh Coals.

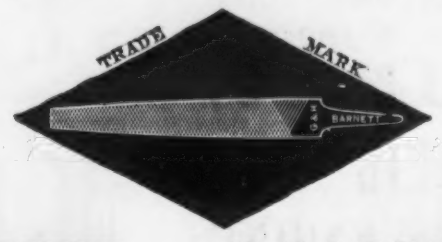
The following superior and well-known Lehigh Coals are mined by ourselves, and firms connected with us, viz.

A. Pardee & Co.	HAZLETON, CRANBERRY, SUGAR LOAF
G. B. Markle & Co.	JEDDO, HIGHLAND.
Pardee, Bro. & Co.	LATTIMER.

OFFICES:
WM. LILLY, Mauch Chunk, Pa.
WM. MERSHON, Agent, 111 Broadway N.Y
WM. H. DAVIS, Agent, Easton, Pa.

Black Diamond File Works.

Send for Illustrated Price List.



Send for Illustrated Price List.

G. & H. BARNETT. **39, 41 & 43 Richmond St. Phila.**

LINFORTH, KELLOGG & CO.,
Sole Agents for the Pacific Coast, 3 & 5 Front St., San Francisco, Cal.

Established 1816.

Peter A. Frasse & Co.,

95 Fulton Street, New York,

SOLE AGENTS FOR

Thomas Turner & Co.'s Suffolk Works,

SHEFFIELD.

FILES AND HORSE RASPS,

And Importers of

P. S. STUBS' FILES, TOOLS & STEEL,

W. J. Davies' Sons' London Emery Cloth,

HUBERT'S FRENCH EMERY PAPER.

AUBURN FILE WORKS,

Superior Hand-Cut

FILES AND RASPS,

MADE FROM IMPORTED STEEL. EVERY FILE WARRANTED.

FULLER BROS., Sole Agents,
89 Chambers and 71 Reade Streets, N. Y

JOHN ROTHERY'S

Celebrated Hand-Cut FILES,

Made of Best English Cast Steel.

WALSH, COULTER & FLAGLER, Sole Agents,
83 Chambers and 65 Reade Streets, N. Y.

FLOWER POT STANDS,

Flower Pot Brackets,
Aquaria Ferneries,
Bird Cage Hooks, &c., &c.

Hildreth Pat. Self-Adjusting and Self-Fastening

BIT BRACE.

French Bronze Butts,

JEWELERS' & DENTISTS' MACHINERY, &c.

Send for a Catalogue.

G. WEBSTER PECK,
Manufacturers' Agent,
110 Chambers Street, NEW YORK.

Tredegar Horse and Mule Shoes.

These superior Shoes are made of the Best Virginia Charcoal Iron. They are well adapted to Western and Southern demand, and are shipped to all prominent markets at freights as low as on other makes.

THE TREDEGAR COMPANY, Manufacturers,
Tredegar Iron Works, Richmond, Va.

SEMPLE, BIRGE & CO., Sole Western Agents, ST. LOUIS, MO.

BUSINESS ITEMS.

PENNSYLVANIA.

The Pittsburgh Locomotive and Car Works are just completing six standard engines with 16x24 cylinders, for the Atlantic and Richmond Air Line Road. They have also finished three narrow gauge engines for Western roads. The latter are eight-wheeled American engines, with 9x16 inch cylinders. The shops are running full time with about one-quarter of a full force.

We learn from the *Engineering and Mining Journal* that the Vulcan Iron Works, of Wilkesbarre, Pa., which stands among the best machine shops in this country, is now completing for the Susquehanna Coal Company, a direct acting "bull" pump (sometimes called a "Cornish" pump), which, for dimensions and excellence of workmanship, is well worthy of note. This gigantic engine has a vertical steam cylinder 65 inches diameter and ten foot stroke, which works two plungers each 24 inches diameter and ten foot stroke; these force the water to a total hight of 550 feet, each pump lifting it 275 feet. Without full specifications it would be impossible to form an idea of the amount of work on such an engine, but some appreciation may be formed from the fact that this machine will cost in the vicinity of $20,000, and was contracted for under very close competition.

The Philadelphia & Reading Railroad Company have issued an order for the building of four passenger engines at the Reading shops. Each engine will cost from $15,000 to $20,000.

Clark & Co.'s hoop mill, of Pittsburgh, is again in operation, after a rest of a few days' duration, to allow of putting in a new engine and making repairs.

Red Bank Furnace, Reynolds & Moorhead, Clarion county, will be blown out as soon as the stock on hand is used up.

The Co-operative Iron and Steel Works, Danville, are running on an order of street rails for Philadelphia, to be used in extending the street railways out to the Centennial grounds.

The rolling mill at West Middlesex has stopped.

Some months ago, the Dickson Manufacturing Company, of Wilkesbarre, built for the Audenried shaft of the Lehigh and Wilkesbarre Coal Company a direct acting pump, of which the steam cylinder was 70 inches diameter, 10 foot stroke, and the lower plunger 20 inches diameter, lifting 377 feet; the upper pump 22 inches diameter, 10 foot stroke, working a lift of 484 feet, making a total hight of 871 feet. The Marom shaft, Scranton, has a pump 50 inches diameter by 10-foot stroke, with a plunger 24 inches diameter. The Pyne shaft of the Delaware, Lackawanna and Western Railroad Company, the Delaware and Hudson Canal Company's shaft, and the Lehigh and Wilkesbarre Coal Company's No. 12 shaft, have each pumps 50 inches diameter, 10 foot stroke, with plungers of 22 to 24 inches diameter.

The Lochiel Iron Works, Harrisburg, which had been idle three months, resumed last week. They have two large orders for rails.

MASSACHUSETTS.

Webster Herrick, of Northampton, has received an order from Cuba for three 58 inch circular saws. They will be used for sawing cigar box boards. The Elastic Heel and Shank Company are receiving orders for shoes faster than they can fill them.

Pattee & Perkins, at Holyoke, are building fifty of the Perkins hydrant for Cambridge. They will probably send some to the Centennial.

The Hinkley Locomotive Works, Boston, have just completed a new engine, named William Gaston. It is to be used as a passenger engine on the Troy and Greenfield road. It was built at the expense of the Commonwealth of Massachusetts, and will be devoted, when required, to drawing the State officials. The engine has eight wheels, and the cylinder is 15 by 22; the drive wheels are five feet in diameter, and the trucks are Washburn's steel rimmed. The weight is 27 tons.

The Lamb Knitting Machine Company, Chicopee Falls, have recently received orders for 100 machines to go abroad and 50 to go West. The other manufacturing concerns at the Falls are also doing well.

VERMONT.

The Emerson Edge Tool Company, at Taftsville received recently the first car load of freight received at Taftsville in the shape of four large grindstones. Their orders for scythes are largely in excess of those of last season at this time.

Messrs. Buck & Collins, of Lebanon, N. H., have rented the machine shop and foundry of F. G. & W. H. Brownell, of Taftsville, for the purpose of making a new style hay tedder, patented by J. M. Collins, and will also do general job work in the line of castings.

OHIO.

The Glasgow Furnace, in Tuscarawas county, is now making about 30 tons of pig iron daily, and readily sells its product. The company owns 1300 acres of fine ore lands.

The Cleveland Lead Pipe and Sheet Lead Works, Gibson, Roberts & Price, are turning out from 5 to 6 tons of sheet lead and from 4 to 5 tons of lead pipe a day in their new works, Nos. 69 and 71 Columbus street.

The Eagle Furnace, at Youngstown, has gone into blast again, after being idle for about two years.

Messrs. Scott & Co., of Cincinnati, have shipped during the past year over 1,000,000 pounds of their Scott's patent sheet iron roofing. Their goods go to the East, West and to Canada, and they are expecting a heavy trade in California. This roofing is so constructed that it can be readily joined together in straight lines and very rapidly; two ordinary hands can easily lay from 10 to 15 square yards per day. This roofing is fire, water, wind and rust proof. No nails or screws are used in putting it on.

H. Taylor & Sons, formerly the Forest City Foundry, Cleveland, are turning out daily an average of 8 tons of light castings, mostly sewing machine and school desk frames.

James Ward is building a nail factory at his Russia Mill, in Niles.

GEORGIA.

We are informed that the Woodstock Iron Company have commenced the manufacture of spiegel iron. The ore bank is near the works of the company, and is said to be very rich. We are informed that several orders have have already been received for this ore.—*Rome Commercial.*

MISSOURI.

The Mormon capital, Salt Lake City, is about to build water works, and have entered into contract with Dennis Long & Co., of Louisville, for the necessary cast iron mains and branches. The contract calls for 1300 tons of pipe, amounting to about $55,000, and was negotiated by Dennis Long, Esq., whilst in that city, lately, and with his Honor, Mayor David H. Wells.

The Pilot Knob furnace blew out a few weeks ago. It is not decided, we understand, what will be done, whether to repair or to rebuild on a better plan.

The Southwestern Car Works Company, Louisville, is now having as much work as it can do. They are building and repairing 150 refrigerator cars for the Union Line, beside repairing a number of freight cars for other roads. The Southwestern is now working 65 men in the manufacture of chains, and will work a hundred at the business before long.

TEXAS.

A late issue of the Houston *Telegraph* notes the shipment of a lot of pig iron from that State to England. Some time since, it appears, a quantity of Texas iron ore was sent to the iron manufacturers of England for assay and test for quality. The result was so satisfactory, and the quality was found to be so excellent, a shipment of pig iron was ordered as an experiment. If it is found that this iron can be profitably obtained and manufactured, a considerable trade will be likely to spring up, with a corresponding development of the iron mines of that State as the result.

ILLINOIS.

The Babcock Silver Smelting Works, of Chicago, have been purchased by parties from California, who will soon commence refining ore brought from Shasta mine in California. When fully equipped it is expected to turn out ten tons of ore and twenty of fluxing a day.

The Great English Gun.

The Woolwich correspondent of the London *News* writes as follows of the great gun at Woolwich, under date of September 14:

This ponderous gun which has just been completed at the Royal Gun Factories, Woolwich, has attracted a large number of visitors today, and a multitude of applications are being made for permission to witness the proof of the gun, which is fixed to take place on Friday next, at the proof butts adjoining the Royal Arsenal. The gun was lifted on to a platform this morning in order that photographs might be taken of its naked shape before being put into its carriage, and one or two good plates of the gun, surrounded by groups of the officers and workmen to show its immense proportions, were taken by the photographers of the Royal Chemical Department. The length of the gun is 33 feet, and its diameter varies from about 2 feet at the muzzle to about 6 feet at the breech. Internally the bore measures 27 feet, and in its present state will just admit a projectile 14½ inches in thickness. It is, however, proposed to enlarge this bore, after the proper calibre has been found by experiment, and it is not unlikely that the gun will eventually have a bore of 16 inches. It is rifled in eleven grooves, and the spiral increases as the shot travels along the gun, commencing with nothing in the powder chamber, and leaving the muzzle with a twist of 1 in 35. The shot will, therefore, turn scarcely once on its axis inside the gun, but this has been proved ample to give it the necessary rotation to the end of its journey. The weight of the gun is a trifle over 81 tons, but it is to be known in the service as the 80 ton gun. It has been constructed of eight separate pieces, wrought iron coils, fitted and shrunk one into the other, on the Woolwich or Fraser system—a system which has for several years been adopted in the manufacture of all English guns, and one which, although professedly discredited by most of the great powers in favor of steel or bronze, or some other system, is known to be at the present time extensively taken up by several of the leading European nations. The gun was designed by Mr. R. S. Frazer, the inventor of the system, and deputy assistant superintendent of the Royal Gun Factories, and it is beyond doubt the most powerful piece of ordnance ever produced. The projectiles with which it will be proved correspond in size, but not in shape, with the shot and shell with which it will be fired on service. They have been cast in the shell foundry of the Royal Laboratory, and are great bolts of solid iron, each weighing 1300 pounds. They are flat-headed, and are filled with a great number of studs to fit the grooves of the rifling. Special rammers, sponges and other apparatus have been provided for the proof of the gun, a truck has been constructed to carry the shot with a special contrivance for lifting it to the mouth of the gun, and the government manufacturers of gunpowder have even provided a special powder. The powder, in its way, is as remarkable as the gun. Each grain of it is a cube an inch and a half in diameter, and the cartridge, which will be 250 pounds of this powder, will be a large bolster about the size of an ordinary man. It is proposed to increase the powder charge if necessary to 300 pounds, but this, like the calibre of the gun and the weight of the shot, will abide the result of experiments.

GEORGE GUEUTAL & SON,

39 West 4th St., New York.

IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS. TOOLS FOR BRAZING, &c.

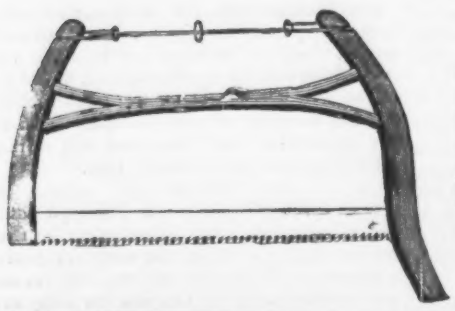
Bed Screws, Pin Hinges, and Wire Nails a Specialty.

H. W. PEACE,

MANUFACTURER OF

Saws of all kinds.

FACTORY, WILLIAMSBURGH, N. Y.



Elliptic Forked Saw Frame.

Patented June 28th, 1870.

The annexed engraving represents my ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

HARVEY W. PEACE,
Sole Proprietor & Manufacturer,
VULCAN SAW WORKS.
WILLIAMSBURGH, N. Y.

AMERICAN SAW CO.,

Manufacturers of

Movable Toothed Circular Saws,

PERFORATED CROSS-CUT SAWS

And SOLID SAWS of all kinds. Trenton, N. J.

THE SILVER STEEL

DIAMOND CROSS-CUT SAW.

$1.50 Per Foot.

Patent Secured

PATENT HANDLES AND GAUGE INCLUDED.

THIS new Saw, which is destined to take the place of all Cross-cut Saws in point of **SPEED AND EASE**, is manufactured by **E. C. ATKINS & CO., Indianapolis, Ind.**, who are the

SOLE MANUFACTURERS FOR THE UNITED STATES.

So confident are we that this is the best Cross-cut Saw in the market that we CHALLENGE THE WORLD. Orders promptly filled.

E. C. ATKINS. H. KNIPPENBERG.

E. C. ATKINS & CO.
Saw Manufacturers and Repairers, Indianapolis, Ind.

Lloyd, Supplee & Walton,

HARDWARE FACTORS.

MANUFACTURERS OF

Bonney's Hollow AUGERS.

Stearn's Hollow Augers and Saw Vises

Bonney's Spoke Trimmers

Double Edge Spoke Shaves

Adjustable Gate Hinges

Scandinavian Pad Locks

Flat Key Brass and Iron Pad Locks, &c., &c.

625 Market St., Phila., Pa.

Wheeler, Madden & Clemson MFG. CO.,

MIDDLETOWN, - - - - NEW YORK.

Manufacturers of

WARRANTED CAST STEEL

SAWS

Of every description, including

Circular, Shingle, Cross-Cut, Mill, Hand,

WOOD SAWS, Etc., Etc.

JOHN MAXHEIMER,

Patented,
June 8, 1862: April 6, 1869; Dec 23, 1873; Jan. 20, 1874; Dec. 22, 1874.

Manufacturer of

JAPANNED and PATENT EUREKA Bright Metal

BIRD CAGES.

Nos. 247 & 249 Pearl Street
NEW YORK.

LE COUNT'S

Pat. Machinists' Tools.

REDUCED PRICES.

Set Iron Dogs,	⅜ to 2 in.	$ 5·00
" " "	⅜ to 4 in.	12·00
" Steel "	⅜ to 2 in.	6·30
" " "	⅜ to 4 in.	13·00

Iron and Steel Clamps, Die Dogs, Clamp Dogs,

Vise Clamps, Expanding Mandrels, &c.

Send for latest Price Lists to

C. W. LE COUNT,
South Norwalk, Conn.

JAMES OHLEN
WARRANTED
PATENT GROUND
SECOND TO NONE
COLUMBUS, O.

make a specialty of the LARGEST SIZES of **Circular Saws**, and call particular attention of lumber manufacturers to the following points of excellence:

Evenness of Temper.—The peculiar structure of my furnace subjects all parts of the saw to a DEAD heat, and when dipped in the oil bath secures perfect uniformity.

Perfect Accuracy in Thickness.—My saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the work.

Properly Hammered.—Great care is taken that no saw shall leave my works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, cannot be successfully run—hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of myself, who has devoted over *twenty years* to the art of saw making.

I am sole proprietor and manufacturer of the celebrated **"Challenge" Cross-Cut Saw.** Price Lists of all kinds of saws sent on application.

JAMES OHLEN.

PEUGEOT FRÈRES,

Valentigney, Doubs, France,

MANUFACTURERS OF

Every description of Saws, Edge Tools, Compasses, Wrenches, Braces, Hammers, New Patent Parallel Hand and Bench Vises, Patent Screw Boxes, Screw Drivers, Bits, Tinmans' Shears, Horse Clippers, &c., &c

COFFEE MILLS,

Doctors, Clock and Telegraph Springs, Rolled Steel for various purposes; as Saws, Watch and Clock Springs, Corsets, Crinolines, &c.

PEUGEOT'S CELEBRATED BAND SAWS.

Works at VALENTIGNEY, HERIMONCOURT, BEAULIEU, &c.

PARIS OFFICES, 2 RUE BERANGER 2.

First Gold Medal, 1819.

For Prices and Illustrated Lists, send to

MR. AD. ARBENZ, St. Nicholas Hotel, NEW YORK.

Bemis & Call Hardware & Tool Co.

PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, Case-Hardened throughout, and not only combine all of the superior qualities of our cylinder or Gas Pipe Wrenches, but also all requisite Combinations of a regular Nut Wrench, thus making a Combination which has no equal.

For Circulars and Price List, address,

BEMIS & CALL HARDWARE & TOOL CO. Springfield, Mass.

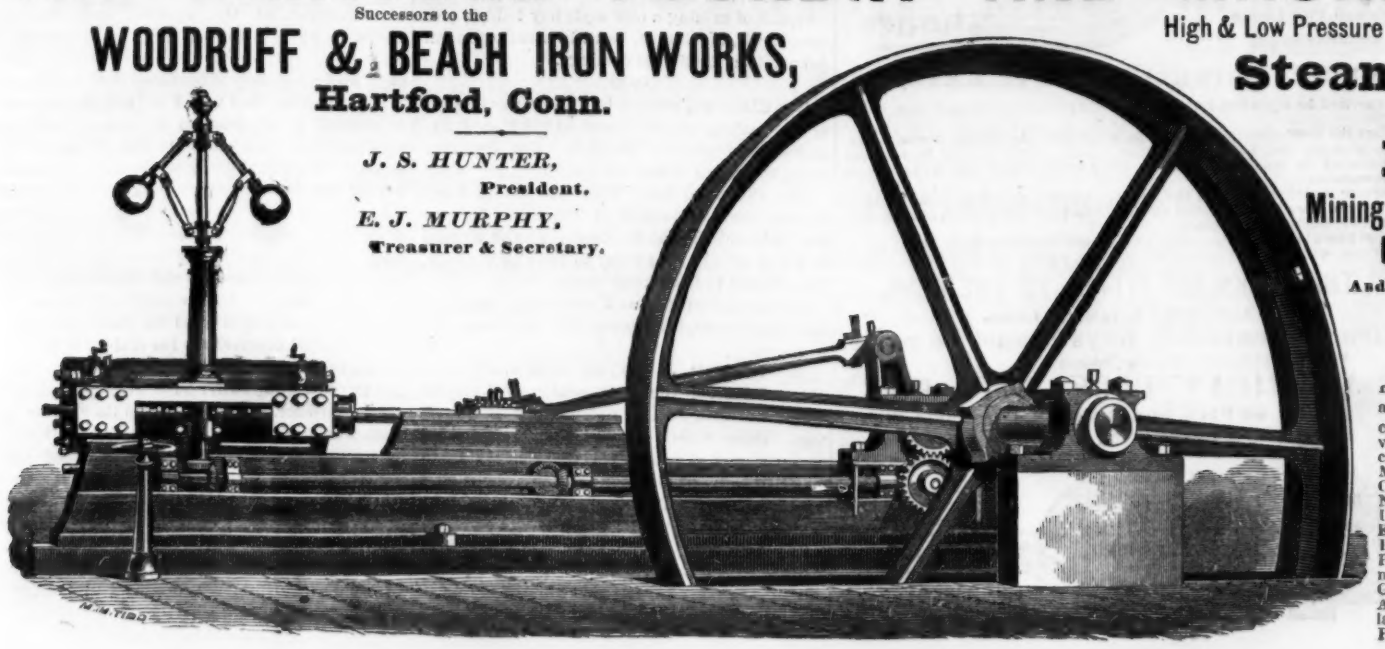
THE HARTFORD FOUNDRY AND MACHINE CO.,

Successors to the

WOODRUFF & BEACH IRON WORKS,

Hartford, Conn.

J. S. HUNTER,
President.
E. J. MURPHY,
Treasurer & Secretary.



High & Low Pressure Marine & Stationary

Steam Engines

AND

Boilers,

Mining, Powder and Paper Mill

Machinery,

And every Variety of Iron and Composition Castings made to order.

The following are a portion of the engines manufactured at these works, and are a sufficient guarantee of our capacity for doing first-class work, viz.: The Pumping Engines in the cities of Brooklyn, N. Y.; St. Louis, Mo. and Hartford, Conn., and in the Charlestown, Mass. and Norfolk, Va. Navy Yards, and the engines in the U. S. Steam Sloops of War Michigan, Kearsage, Manitou, Minnetonka and Piscataqua and the Gun Boats Cayuga, Pequot and Nipsic, the Government Transports Dudley Buck and Geo. C. Collins, and the Steamships America and United States. Also the large Horizontal Engine for the new Plate Mill of the Bay State Iron Co.

VAN WART, SON & CO.

Hardware Commission Merchants,
EXPORTERS AND IMPORTERS,
BIRMINGHAM, - ENGLAND,
Agents,
VAN WART & McCOY,
134 & 136 Duane Street, N. Y.
George H. Gray & Danforth,
48 India Street, Boston.
F. W. TILTON,
17 Old Levee Street, New Orleans.

At each of these places a complete assortment of samples of Hardware and Fancy Goods will be found, including all new descriptions. Sole Agents for

John Rimmer & Son's Celebrated Harness and other Needles.

W. CLARK'S GENUINE HORSE CLIPPERS.

Seydel's "Ashantee" Pocket Hammock

OSCAR IRVING VAN WART & Co.,
FORWARDING AGENTS.
2 South John Street, LIVERPOOL.

E. M. Boynton,

80 Beekman Street,

NEW YORK,

Manufacturer of

Saws of all kinds.

Also Sole Manufacturer of

LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old **V**, outlined on **M** tooth.

Telegram Dated Oct. 1st, 1874.

STATE FAIR, EASTON, PA.

To HENRY DISSTON & SONS:

Philadelphia, Pa.

I want you to publicly test that challenge on Cross Cut Saws. Name time and place within thirty days. American Institute preferred. E. M. BOYNTON.

E. M. Boynton gave on Wednesday of last week an exhibition of what his Lightning Saw could do at the Pennsylvania State Fair, in which two men sawed through a sound oak log, 16 inches in diameter, in 17 seconds. Mr. Boynton informs us that his export trade is increasing, he having lately made large shipments of his saws to Australia and other distant markets.—*The Iron Age*, Oct. 8, 1874.

For fuller report of this exhibition see the *Easton Morning Dispatch* of Oct. 1st, 1874.

Henry Disston & Sons cannot furnish Lightning Saws. Why do they imitate mine?

J. FLINT,

Manufacturer of

ALL KINDS OF

SAWS

And Plastering Trowels,

ROCHESTER, N. Y.

A large Stock of **Cross Cut Saws** constantly on hand. Orders filled promptly. **Dietrich's Double Handle Otte Man Cross Cut Saw** made with any kind of tooth desired. Our patent method of grinding Hand Saws makes them superior to any in the market. Send for Illustrated Price List.

H. CARTER,

290 PEARL ST., NEW YORK.

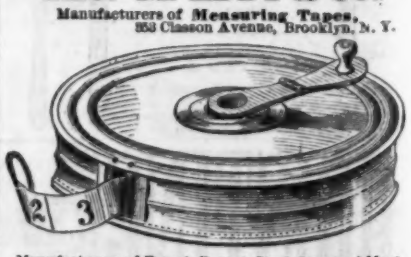
Moulders' and Plasterers' Tools.

Manufacturers of and Dealers in all descriptions of Moulders and Plasterers' Tools, and Dealers in General Hardware, Gilded Copper Weather Vanes.

CARTERS' PATENT CARRIAGE LIFTING JACK, &c.

GEO. M. EDDY & CO.,

Manufacturers of **Measuring Tapes,**
253 Classon Avenue, Brooklyn, N. Y.



Manufacturers of Paine's Patent Steel Standard Measuring Tapes, for Surveyors, Engineers and Mechanics requiring a correct measure of great length according to U. S. Standard. Also of Tape measures for the same trades, Lumbermen, Machinists, Tailors, Shoemakers, Dressmakers &c. Catalogues on application.

A Curious Exhibition.

The town of Nara, in the province of Yamate, says the *Japan Mail*, lies nearly due east of Osaka, and is about as far from Osaka as the latter is from Kobe. Nara was the residence of the Mikados from A. D. 708 until A D. 782. Shortly after this date the imperial residence was fixed at Kiyoto, where it has since remained down to our own time. Seven sovereigns reigned at Nara, of whom four were females. Their rule, with some slight interruptions, was a prosperous and glorious one, distinguished by the cultivation of the arts, literature and religion. Previously to the court quitting Nara, an immense wooden magazine had been erected therein which the imperial furniture and property of all kinds was deposited. This building exists to the present day in complete integrity. It is made of massive timbers laid horizontally, being raised from the ground upon pillars of solid trunks of trees 8 feet or 10 feet high. It is said to have been examined every 61st year since its building, and repaired when necessary. What is more astonishing is that the objects deposited there by the Mikados have been kept in perfect safety from the eight century down to the present time, having escaped the danger of fire, robbery and turbulent times. Some fresh objects have, in the course of centuries, been added to the original collection, but those which belong to the first deposit are all named in an inventory made in the 8th century, which was deposited with them. This being the age of exhibitions and popular instruction, it came into the head of some antiquary that it was time to bring to light the long hidden treasure of the Nara repository. Hence the Nara Exhibition, which has been visited by many foreigners during the present summer. Amongst the curiosities belonging to the Nara Mikados of the eighth century may be mentioned screens, pictures, books, sculptures, masks, of which there is a very large collection, pottery and glass, copper bowls and dishes, spoons, soap (!) in large round cakes the size of quoits, tortoise-shell back scratchers, beads and ornaments, bells, weapons and utensils of various kinds, dresses, hats and nondescript articles. Probably the larger part of these things are of foreign origin, and principally Chinese. The eighth century was the middle period of the great Tang dynasty (A. D. 620–907) and the books and pictures here collected are a rich geld for the study of Chinese art and literature during that time. "Some pottery which we saw," adds the *Japan Mail*, "struck us as more likely to be Indian or Persian than Chinese. A jug or ewer of white glass about a foot high excited some incredulity as an object of the eighth century. A specimen of Chinese writing paper was remarkable for the freshness of its appearance, smooth and unstained; it might have been just produced from the mill. The miscellaneous collection in the outer cloisters embraces objects of various ages, from some alleged to be 1500 years old down to those of the time of Taikosama. The most antique of these curiosities are certain bronzes, which have an Indian character, and some statuettes of clay (?), which remind one of Greek work more than anything else. Some wooden statues, of nondescript physiognomy may, perhaps, be Corean. We saw one picture ascribed to a celebrated Corean artist of remarkable merit. The best pictures on the whole are those attributed to Chines artists, or copies from such. The Japanese are great lovers of autographs, and there were many specimens of this class of relic—notably writings by Yoritomo, Taikosama and Iyeyasu. It would be impossible from two days' cursory inspection of the Nara Exhibition to give more than the faintest idea of the value and curiosity of its contents. It is evident that here are the materials for the study of Indian, Chinese and Japanese antiquity such as are not likely to be congregated anywhere else, and it is satisfactory to know that Japanese antiquaries of high attainments are engaged in cataloguing and describing the collection."

What a Cleveland Man did for American Steamboating.

We find the following interesting fact in the Chicago *Tribune:*

There is nothing new under the sun. In years gone by, American vessel owners sunk their ships for the sake of the insurance, and sent the crew to Davy Jones' locker for the sake of their own pockets with the same hateful callousness of conscience that English ship owners show now. And the pressing need of the time brought forth in America, as it has in England, a Plimsoll. He carried through his reform, as the Englishman has carried his.

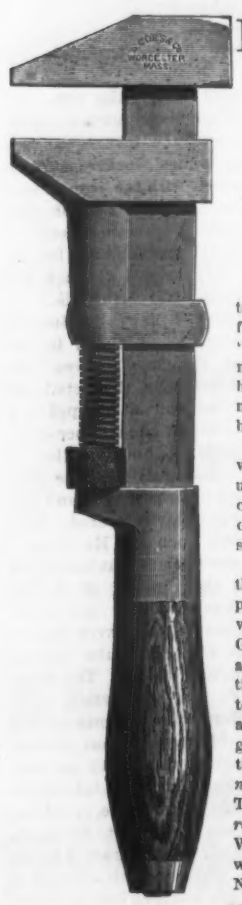
Our Plimsoll was named Sydney S. Burton. He lived in Cleveland, Ohio. Like all intelligent persons he read the daily papers. He noticed a striking similarity in the details of steamboat accidents on the Mississippi and Ohio. One might be burned, and another snagged, and another exploded, but the disaster always happened in some lonely spot, the shattered hull always sunk in deep water, and the missing boat was always heavily insured. Burton read, and pondered upon it. He decided that there was an abuse to right, but he did not see his way clear to the righting of it. He was only a private citizen, without any influence beyond that possessed by every honest man. While he was hesitating, the famous boat, Martha Washington, burned. The spark that fired her, kindled Burton's wrath to a white heat. Thenceforth he was a man of one idea, and so a man of tremendous power. The Martha Washington went down at midnight, carrying with her some shriveled corpses and a vast loss of costly merchandise, according to the bills of lading, not according to the truth. And the truth prevailed. For Burton hurried down to Cincinnati, whispered his suspicions to the insurance agents, and then having started them on a mission of discovery, shouted his beliefs to the public. There was intense excitement, tempered only by the possibility that investigation might reveal nothing. Meanwhile Burton was threatened, as Plimsoll has been with libel suits, arrests and murder. But the insurance men went to the scene of the wreck. Their grappling irons soon located the site of the half-burned hull. Down went the divers, and up came the boxes of silks, and laces, and wines and other costly things which had been insured at Cincinnati. When they were opened, the silks were sawdust, the old laces were old leather, and the wine bottles were filled with water. The load of the Martha Washington really consisted of the street sweepings of a city; it had been insured as a collection of the costliest goods. When this tell-tale story reached Cincinnati, the murderous merchants implicated gladly gave themselves into the hands of the police in order to escape the mob. A long trial followed. The man supposed to be the chief culprit, Lyman Cole, escaped legal punishment, but he slunk into shameful obscurity, like Terry after Broderick's murder, like the outcast thieves of the New York ring, like the predestined victims of the Plimsoll crusade. The trial stopped the system of murder, and Burton having done his work, stepped quietly back into oblivion. His name lingers only in the memories of a few, while Plimsoll's has been on every tongue; but the task undertaken by the American was as difficult, as dangerous, and as worthily done as that by which the Englishman now gains the admiration of the world.

L. COES'

Genuine Improved Patent

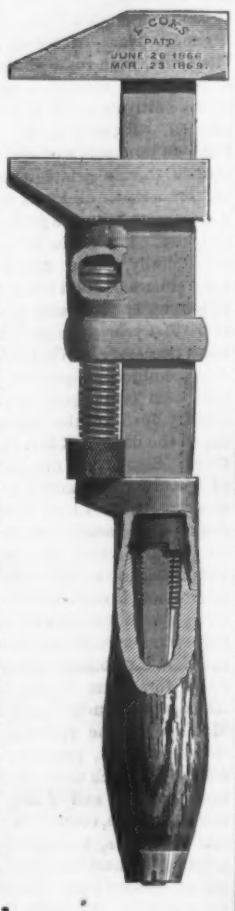
SCREW WRENCHES.

Manufactured by



L. COES & CO.,

Worcester, Mass.



Established in 1839.

Registered March 31, 1874.

We invite the particular attention of the trade to our New Straight Bar Wrench, *widened*, full size of the larger part of the so called "reinforced or jog bar." Also our enlarged jaw, made with ribs on the inside, having a full bearing on the front of bar (see sectional view), making the jaw fully equal to *any* strain the bar may be subjected to.

These recent improvements in combination with the nut inside the ferrule firmly screwed up flush, against square, solid bearings (that cannot be forced out of place by use), verifies our claim that we are manufacturing the strongest Wrench in the market.

We would also call attention to the *fact*, that in 1869 we made several *important* improvements (secured by patents), on the old wrench previously manufactured by L. & A. G. Coes which were *at once closely* imitated and sold as the *Genuine* Wrench by certain parties who seem to rely upon *our* improvements to keep up their reputation as manufacturers, and although the fact of their imitating our goods may be *good* evidence that we manufacture a superior Wrench, we wish the trade *may not be deceived* on the question of *originality*. Trusting the trade will fully appreciate our *recent* efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped

"L. COES & CO."

Warehouse, 97 Chambers St., & 81 Reade Sts., N. Y.

HORACE DURRIE & CO., Sole Agents.

M. H. Jones. A. C. Peck.

M. H. JONES & CO.

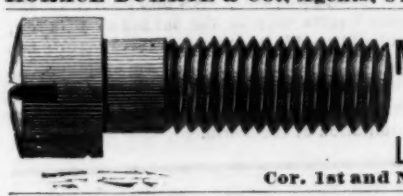
COHOES, Albany Co., N. Y.

Manufacturers of AXES AND EDGE TOOLS.

All Goods Stamped and Labeled M. H. JONES & CO. unless otherwise ordered.

Sole right to the use of the TEN EYCK AXE MFG. CO.'S Trade Mark.

HORACE DURRIE & CO., Agents, 97 Chambers and 81 Reade Streets, N. Y.



TURNED

MACHINE SCREWS,

One-sixteenth to five-eighths diameter. Heads and points to sample.

IRON, STEEL and BRASS.

Lyon & Fellows Mfg. Co.,

Cor. 1st and North 3d Streets, Williamsburgh, N. Y.

THE ORIGINAL

TOMLINSON SPRING & AXLE COMPANY,

ESTABLISHED 1852.

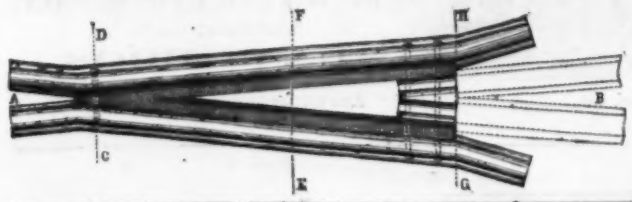
Manufacturers of FIRST CLASS SPRINGS AND AXLES. Also, THE GROOT'S PATENT CROSS SPRING.

RUSSELL TOMLINSON, Prest.
S. R. TOMLINSON, Sec'y and Treas.
C. S. LUPTON, Supt.
} BRIDGEPORT, CONN.

All orders promptly executed.

We have no branch. Please send your orders direct.

AMERICAN STEEL FROG COMPANY,



Railroad Track Supplies,

Harrisburg, Pa.

J. M. CARPENTER Manufacturer of First-Class TAPS Pawtucket R. I.

CONCORD TRADE CONCORD USE N.H. MARK. AXLES

Will Run Easier, carry a Larger Load, and Wear Longer than any other Axle in the Market.

All GENUINE Concord Axles are stamped with above trade mark. Manufactured only by

D. ARTHUR BROWN & CO. Fisherville Concord N. H.

Philadelphia Star Bolt Works.

"STAR"

Carriage and Tire Bolts,

From the Best Brands of

NORWAY IRON.

Trade Mark.

The Celebrated

"STAR" Axle Clip.

All Styles of

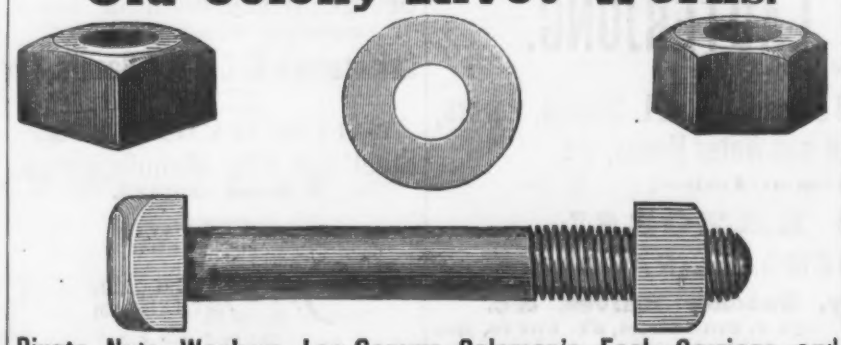
FANCY HEAD BOLTS.

Blank Bolts, Skein Bolts, Square Head Bolts, Plow Bolts, &c., &c., &c.

TOWNSEND, WILSON & HUBBARD, 2301 Cherry St., Philadelphia, Pa

---

Old Colony Rivet Works.



Rivets, Nuts, Washers, Lag Screws, Coleman's Eagle Carriage and Tire Bolts, Axle Clips, Felloe Plates, Shaft Couplings, Stove and Machine Bolts, Driling Machines, Tire Benders,

&c. Full stock constantly on hand. **Warehouse, 34 Warren St., N. Y.**

ESTABLISHED 1837.

H. M. WENTWORTH & CO.

MANUFACTURERS OF

Carriage Springs & Axles

PAM, No 3 WATER ST., **Gardiner, Me.**

ALL GOODS WARRANTED.

BOAT AND SHIP SPIKES,

Machine and Hand Made.

All Sizes, in stock and for sale by

W. & J. TIEBOUT,

Manufacturers of

Brass. Galvanized & Ship Chandlery Hardware

290 PEARL STREET, NEW YORK.

CARRIAGE BOLTS.

Buy the Best.

Clark's Patent Carriage Bolt.

Best Bolt manufactured for all kinds of agricultural machinery. Will not split the wood, and can not turn in its place.

MANUFACTURED BY

CLARK BROS. & CO., Milldale, Conn.

Also Manufacturers of

Plow and Machine Bolts, Coach Screws, Nuts, Washers, Tire Blanks, Rivets, &c

Send for Illustrated Price List.

HOOPES & TOWNSEND,

Manufacturers of

MACHINE & CAR BOLTS,

Cold Punched Square & Hexagon Nuts,

Washers, Rivets, Wood or Lag Screws, Chain Links, Truck and Car Forgings, Bridge Bolts, Bridge Forgings.

IRONS AND RODS FOR BUILDINGS.

1330 Buttonwood Street. PHILADELPHIA.

RICHMOND CAST STEEL, IRON & BRASS WORKS.

McINTYRE & CO.,

Manufacturers of McINTYRE'S CAST STEEL. Every description of Steel Castings made with promptness. Steel Plow Castings, a specialty. Ninth Street, adjoining Free Bridge, Richmond, Va.

SARGEANT MFG. CO.,

Manufacturers of

Saddlery Hardware

In Gold, Silver, Nickel, Japanned, Lined, & X C.

Sole Manufacturers and Patentees of various Patented Improvements, including Gig Trees, "Imitation Covered Mountings," Wedge Buckles, &c., &c.

75, 77 & 79 Summit St., NEWARK, N. J.

Clement & Hawkes Mfg. Co.,

Manufacturers of

SHOVELS,

Planters' Hoes, Trowels and Machinery.

Northampton, Mass.

Send for Circular and Price List.

The Cheapest and Best Gauge Cock made.

Baltimore Bell & Brass Works,

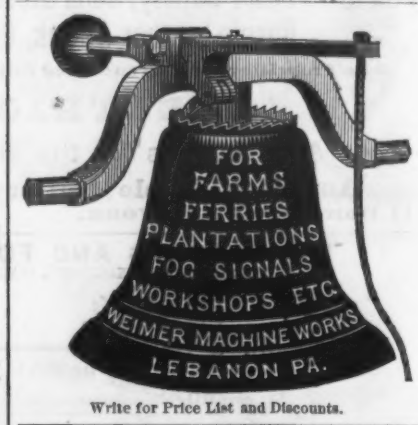
53 & 55 Holliday Street, **Baltimore, Md.,**

Manufacture all kinds of

Brass Work,

And keep on hand a full supply of all

Goods used by Plumbers Steam and Gas Fitters.



Write for Price List and Discounts.

FRANKLIN S. MILES,

Manufacturer of

Brass, Iron, Steel and German Silver SCREWS.

205 Quarry Street, Philadelphia.

Stretches the wire each way, is tightened with a common wrench, is self-fastening at each half turn of the spindle. Warranted for strength and durability. Sold at hardware stores generally. Byington & Northup, sole manufacturers, Rochelle, Illinois.

Agents: Hibbard & Spencer, Chicago; Excelsior Mfg. Co., St. Louis; John Nazro & Co., Milwaukee; George Fritch, Denver; Nelson & Co., Burlington, Iowa; Marshall Lefferts, Jr., N. Y.; J. S. Brown & Co., Galveston, Texas

---

TUCKER & DORSEY,

MANUFACTURERS,

Indianapolis, Ind.

SHEARS.

To cut iron for chain links and bolts fast. To cut rails square for re-laying, a specialty. For rolling mills to cut old rails and flats. To cut bar and angle iron at any angle. Center Cutting Shears for hand or power.

Address W. X. STEVENS, **East Brookfield, Mass.**

First & Pryibil's

461 to 467 W. 40th St.

New York City.

Salesroom,

48 Cortland St., N. Y.

Patent Improved

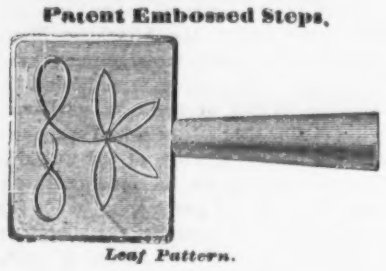
BAND SAW MACHINES

For Bevel and Square Scroll Work and Re-sawing. Manufacture six different sizes. Prices, $165, $210, $250, $300, $360, $425, and $1000. Also manufacture CARVING, SHAPING, FLUTING, ADJUSTABLE DOUBLE SPINDLE BORING, CARVED and SERPENTINE MOLDING MACHINES. Also, GENERAL and COUNTER-BALANCED OVAL TURNING LATHES for WOOD and BRASS TURNING, METAL SPINNING, etc.

CIRCULAR SAW BENCHES, SHAFTING, PULLEYS, and HANGERS. A large assortment of the best FRENCH BAND SAW BLADES, at greatly reduced prices. And a Machine that will set an ordinary Band Saw PERFECT in two and a half to three minutes. SAVING of LUMBER pays for the Machine in a very short time.

H. D. SMITH & CO., PLANTSVILLE, CONN.

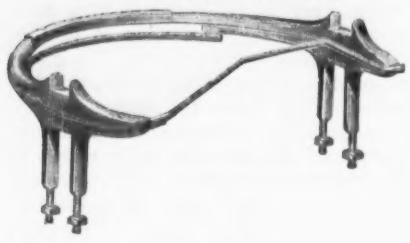
Patent Embossed Steps.



Leaf Pattern.

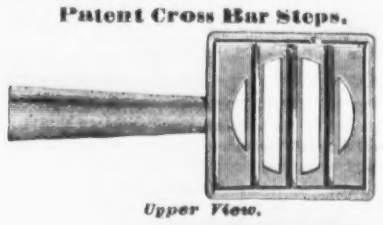
King Bolt Yokes.

No. 6 Fifth Wheels.

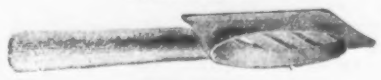


1871 Pattern Shaft Couplings.

Patent Cross Bar Steps.

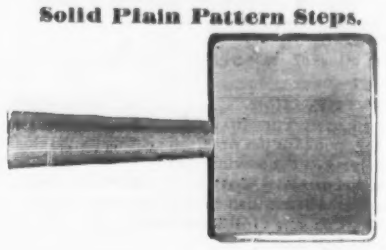


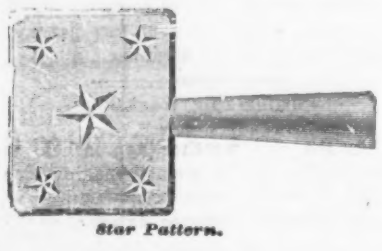
Upper View.



Lower View.

Solid Plain Pattern Steps.





Star Pattern.

Smith's Improved Philadelphia Pattern Slat Irons.

MANUFACTURERS OF A LARGE VARIETY OF FIRST-CLASS

FORGED CARRIAGE IRONS.

Send for Price List.

---

11 Warren Street, N. Y.

H. B. NEWHALL,

Agent for the Following Companies:

EMMET HAMMER CO.,

Manufacturers of all kinds of

Hammers and Sledges and Contractors' Tools.

H. B. NEWHALL, Agent.

All our goods are branded "E. F. EMMET & CO., Brooklyn, N. Y." None genuine without the above brand.

MACHINIST Ball, Straight and Cross Pene Hammers.
BLACKSMITH, Hand and Riveting Hammers.
" Sledges, Swages, Fullers, Flatters, hot and cold Chisels.
HORSE SHOERS' Turning and Shoeing Hammers, Sledges, Pincers.
MINERS' Striking and Drilling Hammers.
QUARRY Sledges, Macadamizing Hammers.
MASONS' Hammers, Brick Hammers.
BOILERMAKERS' Riveting and Flogging Hammers.
COOPERS' Hammers, Drivers and Stakes.
RAILROAD and **SHIP SPIKE** Mauls, &c., &c.

All kinds of

ANVIL TOOLS and STEEL FORGINGS

Made to order at short notice.

WM. H. HASKELL & CO.,

Pawtucket, R. I.

Manufacturers of

COACH SCREWS (with Gimlet Point),

all kinds of

Machine and Plow Bolts,

FORGED SET SCREWS AND TAP BOLTS.

H. B. NEWHALL, Agent.

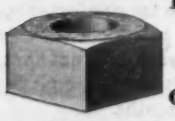
THE READING BOLT AND NUT WORKS,

J. H. Sternbergh, Reading, Pa.

Manufacturer of

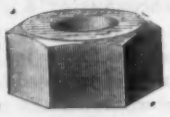
MACHINE BOLTS.

Bridge,



Roof,

and



Car Bolts.

Hot Pressed Nuts,

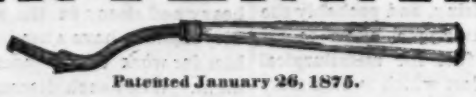
Washers, Wood or Lag Screws, Refined Bar Iron, &c.

H. B. NEWHALL, Agent, 11 Warren St., N. Y.

S. H. & E. Y. MOORE, Agents, 68 Lake St., Chicago, Ill.

POST & CO., Agents, Cincinnati, Ohio.

CENTENNIAL



Patented January 26, 1875.

STOVE COVER LIFTER.

Latest, Neatest, Best.

Tang is made of malleable iron (not liable to break) and is so securely *set* into the handle that it will not pull out. Handle is round, of bright tin, with neat brass ferrule, and is filled with *Plaster Paris* and *Cork*, making it *positively* "Always Cool." Manufactured *only* by

M. H. TARBOX & CO., Lockport, N. Y.

☞ We solicit at *least* your *Sample* order.

AMERICAN BOLT COMPANY,

MANUFACTURE

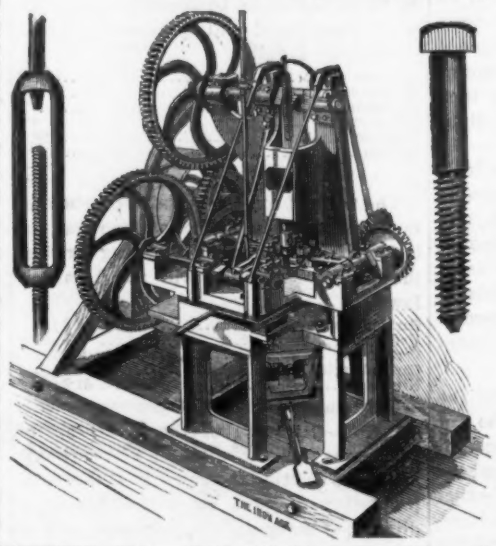
BOLTS AND NUTS!

Coach or Lag Screws, Washers, Chain Links, Forgings, &c.

OF ALL KINDS AND SIZES, AT SHORT NOTICE.

210 Lawrence St., Lowell, Mass.

JONATHAN HOPE. ROBERT H. BUTCHER. JAMES MINTER



With increased facilities we are now enabled to pay prompt attention to all orders for our **Patent Bolt Heading Machine,** now fully acknowledged the best ever invented. Our Machines will head Bolts from ¼ inch diameter to 1¾ diameter, and from ½ inch to 4½ inches long, or longer if necessary, and almost any description of heads—Square, Hexagon, T head, &c. and properly attended, without changing, will head from 3000 to 5000 per day. We are also prepared to offer for sale our **New Patent Bolt Cutter,** which will cut Bolts from ¾ inch diameter to 1¼ inclusive. A boy will cut on an average 4000 ¾ inch Bolts per day. Parties wishing first class Bolt Heading Machines or Bolt Cutters, we would respectfully invite to call at our works, where they can at all times see the Machines in operation and judge for themselves. Perfect satisfaction guaranteed in all cases. For references and any other information in regard to the above, apply to the **American Bolt Co., Lowell, Mass.**

O. W. LEONARD, 40 John St., Sole Agent for New York and vicinity.

Providence Tool Co.,
PROVIDENCE, R. I.

Lewis, Oliver & Phillips,
PITTSBURGH, PA.

Reading Bolt and Nut Works,
READING, PA.

Wm. H. Haskell & Co.,
PAWTUCKET, R. I.

Penfield Block Works,
LOCKPORT, N. Y.

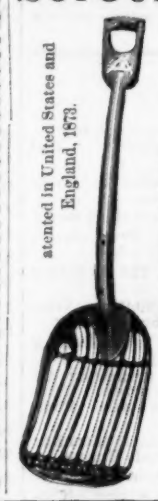
Adamantine File Works,
PROVIDENCE, R. I.

Emmet Hammer Co.,
BROOKLYN, E. D., N. Y.

DEAN'S New Patent (1873)

Screening Scoop

SHOVEL



atented in United States and England, 1873.

For Coal, Coke and Coal Ashes, and other Substances.

The largest frames are 12 by 18 inches, with seven bars, and are made of the Best Malleable Iron. They are, or can be, wired between bars by an arrangement of holes a quarter of an inch apart, by an ordinary person, to screen any size substance desired. They are warranted to be the most durable and practical Screening Shovel made, or money refunded.

Reference—All New York Gas Companies and Hotels.

☞ Smaller sizes on hand.

Please address orders to

A. SEE & SON,
N. Y. Shovel Works,
1358 Broadway, N. Y.

Price: Largest size $30 per doz., and upwards, according to size of spaces.

The EUREKA "Perfected"

SELF-ADJUSTING

Simplest, Best and Cheapest Clothes Wringer in the World.

Steel Elliptic Springs.

T. J. ALEXANDER,

General Agent and Manager,

Office, Oliver St. cor. High, Boston, Mass.

GRANT & CO., Newark, N. J.

Cap Rifles & Targets.

American Chain Cable Works.

Thirty years' experience in the business.

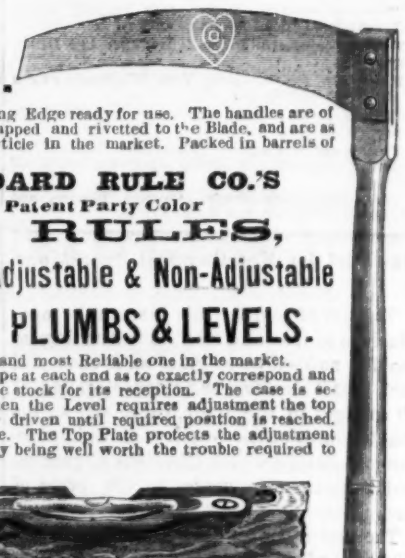
KENDRICK & RUNKLE, Trenton, N. J.

Manufacturers of **Cable, Crane, Car Brake, Agricultural, Machine and Harness Chains** of every description. Also, sole manufacturers of

KENDRICK'S PATENT IMPROVED TRIPLE COAL MINE SLOPE CHAIN.

N. B. The highest grades of Crane Chains a specialty

CAST STEEL CORN HOOKS.



The blades are polished and ground to Sharp Cutting Edge ready for use. The handles are of first-class timber with square end, and are firmly strapped and rivetted to the Blade, and are as pronounced by the trade the Best and most durable article in the market. Packed in barrels of seven dozen each.

Sole Agents for STANDARD RULE CO.'S

Boxwood, Ivory, Ebon, and Patent Party Color

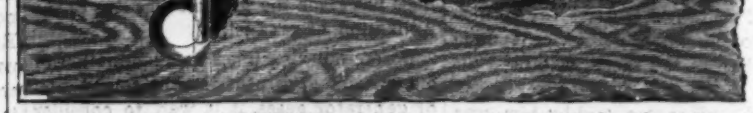
RULES,

Adjustable & Non-Adjustable

PLUMBS & LEVELS.

Their Adjustable Level is the Simplest, Strongest and most Reliable one in the market.

The Spirit Glass is in a metallic case of such a shape at each end as to exactly correspond and bear easily upon perfect curve of a recess formed in the stock for its reception. The case is secured at each end to the stock by a strong screw. When the Level requires adjustment the top plate is removed, one screw is loosened and the other driven until required position is reached. The Plumb Glass is arranged on the same principle. The Top Plate protects the adjustment against thoughtless or mischievous persons, the security being well worth the trouble required to remove it when an adjustment is necessary.



Agents for *COBB & DREW'S* Rivets and Tacks. *RIPLEY MFG. CO.*, Mallets, Mouse Traps, Bung Starts, &c. *ATWATER MFG. CO.*, Carriage Hardware, Clips, Couplings, &c. *VALLEY HARDWARE CO.*, Bow Pins, Bull Rings, Saw Setts, &c. *AMERICAN LOCK MFG. CO.*, Store Door Locks, Padlocks, &c. *R. HUMPHREY & CO.*, Spoons, Ferrules and Tin Washers.

MANUFACTURERS OF

Nuts, Washers, Machine, Stove, Carriage, Plow and Agricultural Bolts, &c., &c.

UNION NUT CO., 78 Beekman Street, N. Y.

Factory, UNIONVILLE, CONN.

The Iron Age.

New York, Thursday, October 7, 1875.

DAVID WILLIAMS - *Publisher and Proprietor.*
JAMES C. BAYLES - *Editor.*
JOHN S. KING - - *Business Manager.*

NEW YORK, January 2, 1875.

Until the 1st instant the postage on newspapers was paid by subscribers at the office where the paper was received, the yearly rates on the different editions of *The Iron Age* being as follows: Weekly, 40 cents; Semi-Monthly, 40 cents; Monthly, 24 cents.

Under the provisions of the new postal law, which went into effect on the 1st instant, prepayment at the office of mailing is required, at the rate of two cents per pound for the Weekly, and three cents per pound for the Semi-Monthly and Monthly, which will make the postage as follows on the different editions: Weekly, 50 cents; Semi-Monthly, 30 cents; Monthly, 15 cents.

Our rates of subscription will therefore be as follows:

Weekly Edition.....$4·50 a year.
Issued every THURSDAY Morning. Contains full Trade Reports for the week, brought up to the close of business on the previous day.

Semi-Monthly Edition.....$2·30 a year.
Issued the FIRST AND THIRD THURSDAY of every month. Contains a full Review of the Trade for the previous half month.

Monthly Edition.....$1·15 a year.
Issued the FIRST THURSDAY of every month. Contains a full Review of the Trade for the previous month.

To Foreign Countries.

Including Postage.

To	Weekly.	Semi-Monthly.	Monthly.
Canada	$4 50	$2 30	$1 15
Cuba	5 04	2 52	1 26
Great Britain	6 08	3 04	1 52
France	7 12	3 56	1 78
Germany	6 08	3 04	1 52
Prussia	6 08	3 04	1 52
Buenos Ayres	8 16	4 08	2 04
Peru	6 08	3 04	1 52
Belgium	6 08	3 04	1 52
Mexico	8 68	4 34	2 17
Sweden	6 08	3 04	1 52
New Zealand	8 16	4 08	2 04
Brazil	8 68	4 34	2 17

ADVERTISING.

One square (12 lines, one inch), one insertion, $2·50; one month, $7·50; three months, $15·00; six months $25·00; one year, $40·00; payable in advance.

All communications should be addressed to

DAVID WILLIAMS, Publisher,
10 Warren Street, New York.

EUROPEAN AGENCY.

CHARLES CHURCHILL & Co., American Merchants, 28 Wilson Street, Finsbury, London, England, will receive subscriptions (all postage prepaid by us) at the following prices in sterling: Great Britain and France, 25/; Germany, Prussia and Belgium, 33/4; Sweden, 50/. They will also accept orders for advertisements, for which they will give prices on application.

City Subscribers will confer a favor upon the Publisher, by reporting at this office any delinquency on the part of carriers in delivering *The Iron Age:* also, the loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons authorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and intention to enforce this rule in every instance.

CONTENTS.

Gas Fuel in Metallurgical Operations.

The use of combustible gases in the manufacture of iron and steel, is extending so rapidly and shows so great an economy of fuel, that it deserves the close attention of all engaged in the trade, especially as the coal business of the country is rapidly assuming a shape which threatens a gradual and permanent advance in the price of fuel.

The first attempts on record for the employment of combustible gases, in connection with iron manufactures, were made in 1809, by Aubertot, in France, who used the waste gases of the blast furnace for roasting ores and similar uses, and by him was first suggested the construction of metallurgical furnaces for the employment of such waste gases. In 1801 the employment of these gases in the carbonization of wood was first suggested by Lampadius, but the first attempt at a metallurgical operation with gas was in 1830, at Freiberg, where lead was reduced in a cupel by means of gas generated from mineral coal. In 1836 a patent was granted Victor Sire, of Clerval, France, for the manufacture of wrought iron by use of the waste gases from the blast furnace, which was employed two years later at the Jagerthal Works, on the Lower Rhine, and since in the Department of Moselle. Faber du Four successfully used the waste gases of the blast furnace at Wasseralfingen in 1837, in a reverberatory furnace, and the attempt was considered an important step in the manufacture of wrought iron, and widely adopted. The use of furnace gases, however, soon demonstrated that a change in the working of the furnace so changed both the quality and quantity of the gas that the subsequent metallurgical operations were impaired, while it was alleged that the collection of the waste gases injured the working of the blast furnace itself. Hence all efforts to utilize the waste gases from the blast furnace for refining or puddling iron were abandoned, and their use has been since confined to heating the blast, generating steam, roasting ores, &c., &c. When we consider that in the blast furnace but 18·46 per cent. of the calorific power of the fuel employed is utilized, and that 81·54 per cent. leave the stack as combustible gases still fit for use, it is not to be wondered at that innumerable efforts have been made toward the reduction of iron ores by gas fuel direct. With this accomplished, the manufacture of pig iron would be conducted with an economy not now possible. The various processes for the production of wrought iron direct from the ore; of iron sponge, &c., as by the Landore and the Blair processes, are all the result of this attempt to utilize all the calorific power of the coal, and at the same time to escape the protracted and round-about process of first producing a carbonized iron and then decarbonizing it by expensive and tedious methods. We find, however, in the records of metallurgical progress but little indication of any effort to reduce ores to pig iron by the action of gas fuels, and with the addition of the necessary amount of carbon not supplied by the fuel used. This is a direction in which the minds of experimenters should be turned, as success in it would be attended with important results.

As before stated, the waste gases of the blast furnace were found unsuitable for metallurgical purposes, but their uses for the time they were employed suggested the production and consumption of other gases, which would be free from these objections. The practical application of this idea is rapidly changing the metallurgy of iron and steel and economizing production. As we have referred to the losses of heat power in the blast furnace, equal to 81·54 per cent. of fuel employed, so we find in the ordinary combustion of compact fuel on grates a very considerable loss of temperature, sometimes over 60 per cent., and for the reason that perfect combustion is never so effected. With a lack of oxygen a partial carbonization takes place; with an excess, the surplus of oxygen and nitrogen must be heated. Bunsen estimates the loss in reverberatory furnaces as even greater than in blast furnaces. From this fact, and the use of blast furnace gases, came the production of generator gases and their combustion in metallurgical furnaces. The history of the earlier efforts toward this end is almost contemporaneous with that of the employment of furnace gases. Thus, in 1839, Bischof, at Magdesprung, produced carbureted hydrogen gas by heating raw coal in a generator. In 1840 attempts in Austria to produce similar gases from combustion of charcoal were interrupted by explosions. In 1841 Karsten and Heine both suggested that fuels which, from their low calorific power, were not adapted to puddling iron, could be converted into carbonic oxide gas in special apparatus, and at the same date Frerejean, in France, experimented to this end. These experiments showed the possibility of firing with artificially produced gases and their great power, and in 1842 favorable results were obtained at St. Stephan, in Styria, in producing combustible gases from small brown coal. These results gave rise to a more or less general introduction of the employment of artificially produced gases, and the methods of production and consumption have been since developed by Thomas, Eck and others, but especially by C. W. Siemens, whose well known regenerative gas furnace has given the greatest impetus to the utilization of gas fuel.

Before entering upon an examination of any special apparatus for the combustion of generator gases, it is well to consider their production and composition. Many kinds of compact fuel, from their conditions of aggregation, large percentage of ash, etc., do not allow of direct use, while their gases can be judiciously and effectively consumed. Moreover, the best fuels consumed through their gases yield far more nearly their theoretical heating power than by any other method of combustion. In the absence of mineral coal, also, the fuel available for metallurgicaal purposes are the gases of wood, peat, etc. The production of these gases is effected with great simplicity in generators or upright furnaces, partially filled with the fuel to be volatilized. Air is admitted to the lower part of the generator, by either blast or draught, producing carbonic acid and oxide in variable proportions as to the fuel, atmospheric pressure, etc. The gases thus produced, in their ascent through the column of fuel above, the hight of which varies according to character of fuel, are transformed into carbonic oxide, which it only remains to conduct to the place of combustion and burn with the admixture of either cold or heated air. This carbonic oxide is made impure, however, by the nitrogen of the air of combustion, and contains more or less carbureted hydrogen, owing to a dry distillation in the upper layers of fuel. The composition of generator gases is stated by Scheerer to be as follows, with their heating power:

	Wood. I.	Wood. II.	Peat.	Charcoal.	Coke.
Nitrogen	53·2	55·5	63·1	64·9	64·8
Carbonic Oxide	34·5	21·2	32·4	34·1	33·8
Carbonic Acid	11·6	22·0	14·0	0·8	1·3
Hydrogen	100·0	100·0	100·0	100·0	100·0
Total	0·095	0·084	0·063	0·079	0·073
Absolute Heating Power	0·000124	0·000109	0·000082	0·000103	0·000098
Specific Heating Power	1325°C	1165°C	1·070°C	1260°C	1240°C
Pyrometric Heating Power					

Siemens reports the composition of a generator gas made at the glass works, St. Gobain, France, by burning a mixture of ¾ caking coal and ¼ non-caking coal by analysis as follow:

Carbonic oxide	23·7
Hydrogen	8·0
Carbureted hydrogen	2·2
Carbonic acid	4·1
Nitrogen	61·5
Oxygen	0·4
	99·9

The trace of oxygen is claimed to be due to carelessness in collecting the gas, or leakage into the flue, and allowing for this, the corrected analysis will stand as follows:

Carbonic oxide	24·2	
Hydrogen	8·2	34·6
Carbureted hydrogen	2·2	
Carbonic acid	4·2	65·4
Nitrogen	61·2	

Only the first three of these constituents—say, 35 per cent. of the whole—are of any use as fuel, the nitrogen and carbonic acid only diluting the gas. It is the large proportion of inert gases that renders it difficult to maintain a high heat by gas of this kind burnt in the ordinary way. Hence the necessity of some form of regenerative furnace where the presence of nitrogen is not objectionable, as the heat it carries off is given up again to the air and gas coming in.

The materials from which generator gases can be produced are so numerous and abundant, in practice, that this form of heat especially commends itself to all sections of the country. Coal is, of course, the principal fuel to be used, but may be utilized in various forms now regarded as waste. Small coke is used in England, wood is employed in France, Bohemia and Spain, sawdust in Sweden, lignite in various parts of Germany, and peat in Italy and elsewhere. Probably peat may be regarded as one of the choicest fuels for the production of generator gases, which is of importance as affecting the value of the numerous deposits of the United States, especially since, by late experiments, it has been found that wet peat, as taken from the bog, can be successfully used under certain conditions for the production and maintenance of the highest heats.

The uses of the regenerative furnace of Siemens, which has been so frequently described in these columns, are extended to various other industries beside iron and steel furnaces for simple heating purposes. They are in use perhaps quite as largely by glass makers as iron makers, and are largely employed by the producers of crucible steel and in the manufacture of steel castings. Their introduction has been followed by a rapid increase in their use throughout the world, and although expensive in construction and repairs, they as yet surpass any other form of gas furnace for purposes requiring a high, steadily maintained and controllable heat. The production of Siemens-Martin, or open hearth steel, the product of which in the United States has increased within the last twelve months 100 per cent., or from 3500 to 7000 tons, is possible only by the use of this furnace. Reports as to the economy of fuel by the use of gas fuel in the regenerative furnace, show that at Barrow-in-Furness, England, in a period extending over two years, the saving of coal was no less than 44 per cent., while, owing to the use of a particular kind of coal previously unavailable, the actual money saving was more than one-half. Other statements, based on long experience, show that with the use of this furnace fifteen hundred-weight of slack coal, practically valueless otherwise, will furnish fuel for the production of one ton of mild steel, while five hundred-weight more will furnish heat for converting the ingots into steel rails or plates. Practically, this is one ton of fuel to the production of one ton of Martin steel rails or plates, and is in itself a wonderful evidence of the progress of metallurgical economy. In puddling, ten hundred weight of small coal are used to the ton of iron, while a further saving is made in the yield of iron, which is stated as within 1 or 2 per cent. of the pig iron charged, a result never obtained by the old process except where the loss of iron is obviated at the expense of adding rich ores for fettling.

Practically, the advantages of using gas heats are, economy of fuel, increased yield of product, and economy in repairs, as the chief benefits to be gained, but to those are to be added complete control of the flame or heat, greater cleanliness, order in works, and an entire absence of smoke.

From the fact, as stated by Siemens himself, that the gas producers may be at any distance from the furnaces they supply if only at a lower level, it may be easily seen that all the gas fuel for a large works may be produced, as indeed is generally the case, outside the works, and conducted to each furnace or fire as required. Further, by Siemens authority, it would be perfectly practicable to erect gas producers in the coal mines themselves, and consume the slack and waste coal *in situ*, instead of leaving it in the workings, and to distribute the gas by culverts to the works of the neighborhood instead of carrying coal to the different works, and establishing special gas producers at each, as in rising to the mouth of the pit the gas would acquire sufficient pressure to send it through several miles of culvert. This suggestion leads to another more practical in connection with the supply of gas fuels to cities and villages by corporations, as illuminating gas is now supplied. The practicability of generating the gas on a large scale, and with sufficient pressure to transmit it for distances, being demonstrated, there can be no material obstacle to the supplying of it to workshops or dwellings of an entire city, provided the proper appliances for burning it are substituted for those now in use. The economy in fuel, and of space in storing it, in transportation and handling, etc., would abundantly repay any cost of change in apparatus. That this or some similar plan will be the future fuel supply is now probable, and the progress made in the adoption of gas heats indicates that we shall hear of it in the near future.

Another and no less interesting use of gas fuel, which may be considered an offshoot of the introduction of generator gases into industrial pursuits, is that of natural gas. This, so far as we have information, is as yet confined to certain and restricted portions of the United States, but the area is rapidly extending. The flow of natural gas from oil wells and gas wells has been utilized for warming, cooking and lighting in several localities in Pennsylvania for several years. The first application of it to metallurgical purposes that we have record of at hand, was by Messrs. Rogers & Burchfield, in their rolling mill at McKeesport, Pennsylvania, two years ago. The results there were so satisfactory that wells were sunk for gas at various other localities where it was supposed to be attainable, and the flow utilized for metallurgical purposes. Wells for this purpose have been sunk at and near Pittsburgh; on the Ohio River at various points, and at Newcastle in the Shenango Valley. At the latter place a well put down by Reis, Brown & Berger is reported to have reached a depth of 2500 feet. Gas was found at 500 feet, but not in satisfactory supply. At Beaver Falls, Pennsylvania, a well formerly sunk for salt water was deepened several hundred feet, encountering a strong flow of gas. It was still further deepened to 1100 feet where gas was found in great quantities, and which it is proposed to use for the iron and steel works of the place. This gas has already been introduced into the file works at Beaver Falls, where it is intended to employ it for all heating purposes. The pressure is said to be ninety pounds to the square inch. The gas costs much less than coal, while it is far superior for use in tempering.

The most enterprising, and probably the most thoroughly American effort to obtain an economical fuel for metallurgical purposes, and an effort which is on a truly heroic scale, is that of two Pittsburgh firms, Messrs. Graff, Bennett & Co. and Spang, Chalfant & Co. These iron masters have recently purchased a celebrated gas well in Butler county, Pa., from which they have determined to bring the gas for use as fuel in their iron works, a distance of 17 miles. Work has been already commenced on this undertaking, which requires the construction of a trench three feet deep, and the laying of 17 miles of six inch pipe for the transmission of the gas. Should this effort be successful, other similar attempts will be made, and a great change in the method of iron making in and around Pittsburgh may be expected. Although we have no evidence of natural gas supplies in use east of the Allegheny Mountains, generator gases are largely employed. Prof. Wurtz has, however, indicated the existence of two or more gas producing belts crossing the State of New York, one of which is in the vicinity of the Catskills. Without counting on the practicability of a supply of natural gases suitable for fuel outside of special localities, the abundance of slack or dust coal now treated as waste, the numerous and extensive deposits of peat, and the great variety of cheap gas producing substances, encourages the belief that progress toward greater economy in the use of fuel during the next few years will tend steadily in this direction.

Comfortable Workshops.

As the cold weather approaches, and preparations for it are now making on all sides, we would remind manufacturers and others of the importance, as affecting their own interests, of making comfortable the workshops in which their business is carried on. Few factories are built with reference to the fact that summer weather only lasts through some four months of the year, and that four of the remaining eight months are so cold in this climate that physical comfort depends in a very great degree upon the maintenance indoors of an artificial temperature from 30° to 50° above that of the outer air. Generally, the arrangements for heating workshops and factories are inadequate to the work expected of them. As the rule, the buildings are so constructed that, under the most favorable circumstances, it would be impossible to maintain an equable and comfortable temperature throughout, however much coal was burned in the attempt. It is almost always possible, however, for manufacturers to keep a shop warm enough to work in comfortably, and that they will profit by so doing is a fact which we think will appear to any one on a moment's reflection.

Work done in a cold, uncomfortable shop is always done with difficulty. The workman does not have the invigorating influence of the pure, crisp, bracing outdoor air to stimulate his energies. He is merely cold, and it is with difficulty that he gets to work in the morning or keeps at it during the day. If there be a cold draft from a loosely fitted window near his bench, or a cold current passing over the floor, benumbing his feet, he cannot be expected to work to good advantage. His frosty tools repell his touch; his hands, stiffened by cold, lose their skill; his muscles lose their elasticity and he becomes both careless and clumsy. For this the workman cannot properly be held accountable. He is, generally speaking, physically incapable of much effort, especially if from any cause his feet are kept chilled. Under these circumstances it is difficult to get up a circulation active enough to render him comfortable, even when he works vigorously; and however good his intentions, he cannot do a "square day's work." He is, moreover, liable to become sick. Cold feet are the cause of many of the most fatal maladies of the winter season—heavy colds, bronchitis, pneumonia, disorders of the bowels, &c. To protect his men against preventible causes of sickness, as well as to make them comfortable during working hours, is a duty which every employer owes to those who work for him. Ordinarily, this can be done with little trouble and expense. Weather strips around the windows, battons nailed over cracks, a few sand bags judiciously disposed, and tight-fitting doors, with springs to keep them closed, will usually do much toward making a shop so far comfortable, that a man accustomed to work in shirt sleeves eight months of the year, does not have to encumber himself with a heavy coat during the remaining four months.

Of equal importance, as affecting health and comfort, is good ventilation. A foul atmosphere charged with organic impurities and heavy with carbonic acid, is not one in which a man can work all day without suffering more or less in consequence. He is quickly exhausted by effort, becomes heavy and sleepy in the afternoon, and is very liable to have a headache which unfits him for work or for comfortable rest at night. When such discomfort is a matter of daily experience, it is inevitable that men will grow careless and indolent, and probable that they will have recourse to the dangerous expedient of stimulating their flagging energies with drink. In summer, when doors and windows are open, ventilation takes care of itself. In winter, when doors and windows are kept closed, it is necessary to health and comfort that artificial means of ven-

tilation be provided. How this can best be done in connection with the maintenance of an equable and comfortable temperature, is a question not always easy to answer. When attempted by one who has not given especial attention to the matter of ventilation, mistakes are almost certain to be made which will defeat the object sought. Commonly, the manufacturer will find it to his interest to employ the services of an engineer who has made heating and ventilation a study. It is an expense incurred but once, and its benefits will be experienced as long as the factory stands. A comfortable temperature and a pure atmosphere are conditions which no employer can disregard without feeling the bad effects of his neglect in pocket and reputation. In a climate like this, where the temperature is liable to extreme variations, provision for adequate heating and ventilation in winter should in every case be made in planning a building to be devoted to industrial purposes, whether it be large or small. Where these are neglected, the employer who, in winter, gets eight hours of work out of every ten hours of time for which he pays, does better than the average—and, we think, better than he deserves.

The Facts Respecting the City of Peking.

During the past few months there has been a great deal of newspaper talk about original defect in the construction of the steamers City of Peking and City of Tokio, built by Mr. John Roach, at Chester, for the Pacific Mail Steamship Company. This discussion has created in the public mind the impression that these steamers, which are supposed to represent the best work of which our American shipwrights are capable, are not up to the best foreign standards of quality, and that before the ships can be made seaworthy they will have to be in part rebuilt, the changes including the substitution of iron for wooden decks. The facts of the case are briefly as follows:

When an individual or a company proposes to build a steamship, the plans and specifications are submitted to one of the four or five organizations of classification and insurance known as Lloyds. If the Lloyd's require alterations or modifications in the design of the ship, before they accept the specifications as such as would render the vessel, when built, worthy of insurance, the alterations and modifications are made, and the specifications receive the endorsement of the Lloyd's before work on the steamer is begun. The "era of long ship building," as it is called among the trade, was inaugurated in 1871, with the construction of the White Star steamer Oceanic. There have been built since then, and are now running between New York and Liverpool, nine steamships in different lines, whose proportions of length to breadth are about the same as those of the Oceanic. All except the last three of them were built without the "iron decks," that is, the spar and main decks made of iron three-eighths to one-half inch thick, extending the whole length and width of the ship, and the plates of which are riveted the same as boiler plates. Most of the new "long" foreign steamships which were originally built without them, have been laid up and furnished with them. The City of Peking and City of Tokio were not built with these iron decks. They are insured in the Bureau Veritas, the highest of the Lloyd organizations, which, in view of the fact that these ships are 8 feet wider and 75 feet shorter than most of the largest transatlantic steamers, did not exact the iron decks as a condition of an A1 classification and insurance. After these steamers had sailed, the Bureau Veritas changed its conditions of classifying and insuring the largest size of iron steamships, because more than three years' experience with them showed that the iron decks are absolutely necessary to render vessels of this class worthy of A1 classification. The City of Tokio is said by one of her principal officers to be now in as good condition as when she left New York. The City of Peking, built to draw 24 feet of water, left New York drawing 26 feet. She was laden with the heavy freight, which was never moved during the voyage, in the forward and after ends, while coal enough was burned between New York and Panama to lighten her 4 feet 9 inches. She went through six heavy gales and was badly strained. She can be fitted with the iron decks at an expense of not more than $30,000, and will then be at least as strong as the strongest steamship in the North Atlantic service.

The English Centennial Commissioners have made application for such extension of the space allotted to them as will permit them to erect a third building for the reception of British exhibits. This is just as we supposed it would be. The British government was among the last of the great powers to consider favorably the invitation of the United States to take part in the exhibition. It was evident, however, from the first that, while not disposed to encourage it, or even to regard it with favor, the question whether she would take part in it or not was one to be determined by considerations of self-interest alone. When it became evident that the Centennial was certain to be a success, and that other countries were beginning to make extensive preparations, the British government regarded the undertaking with more favor, and notwithstanding the ill feeling growing out of the tariff, British manufacturers have concluded to take part on a scale of liberality far in excess of what the government seems to have expected. We are glad of this for many reasons. Without a good representation of the products of English industry, the Centennial would be incomplete and unsatisfactory; with it there will be more inducement for intelligent Englishmen to visit this country, and if they do so we are sure they will carry away with them very pleasant memories. A fuller and freer intercourse between the two nations would do much to promote friendly feeling, remove unfounded prejudices, modify the unpleasant exhibitions of national pride, and avert the calamity of a rupture of the pacific relations which now exist between the two nations. We think there is everywhere a disposition to extend the hospitalities of the nation to all foreigners who may visit us during our Centennial year, and especially all representatives of the culture, enterprise and progress of Great Britain.

THE AMERICAN INSTITUTE.

Novelties and Objects of Interest in the Forty-fourth Annual Exhibition.

The forty-fourth annual exhibition of the American Institute, now open, compares very favorably with those of previous years, but if we can judge from a comparison of this with former fairs, we are justified in concluding that the progressive element does not exercise a controlling influence in the management of the Institute. There are many objects of novelty and interest among the exhibits, but we have acres of floor space devoted to old friends—which delighted our ancestors, and promise to excite various feelings in the breasts of generations to come. We do not think there are quite as many tons of fancy soap, and the pyramids of pills and patent medicines are somewhat smaller than in former years, but a great majority of the entries are commonplace in character, and are shown simply to advertise the manufacturers. Very few industrial operations are carried on within the building, and the interest which these created in former years is missed this season. It is, however, a very pleasant place in which to pass an occasional afternoon or evening, and the intelligent observer can learn a great deal from a careful examination of what he can find in the various departments. In this notice we shall mention a few of the most noteworthy exhibits, reserving the others for consideration in future issues.

STEAM PUMPS.

The department of pumps has a good number of exhibitors. None of the very large pumps, of which we have seen a number in previous years, are exhibited this season, but of small steam pumps there is a good showing. Among the novelties to which our attention was especially called, we mention the following:

Mr. A. Carr, No. 33 Cortlandt street, New York, beside a variety of steam radiators, exhibits a Selden pump with a new noiseless valve motion. The tappits are cushioned with a plug of hard wood seated on rubber, and let into the ends of the tappits. This makes the pump very quiet, even when working at a high rate of speed. The new valve motion is applied to several sizes of the Selden pump.

Hubbard & Allers, 93 and 97 Pearl street, New York, exhibit the well-known Niagara pump, with a new valve motion, in which the main valve is prevented from pounding when running fast, by springs on the valve rod. The valve is loose on the rod. No auxiliary valve is used. The same firm also exhibit a hydraulic organ bellows.

Messrs. Foster & Jamieson, 13 Adams street, Brooklyn, have a stand of pumps, and make a very pretty show.

Geo. W. Burr, of Ballston Spa, N. Y., has a self-packing power pump of decidedly novel construction. The feature of the pump is what may be termed a brass pump leather. In other words, a brass plunger composed of several pieces is made to act the part of a conical pump leather, so that the pump does not require any soft packing.

Thomas Hanson, 291 Pearl street, N. Y., has a noiseless water pressure pumping engine. It uses the force of the water drawn in the lower part of the house to force water into a tank to supply the upper part of the house. This avoids wasting water for the purpose of driving the pump, as is often done with hydraulic motors. A pump for household purposes was a very interesting machine, but we could find no information in regard to it; a matter which we regret.

STEAM ENGINES.

The show of engines is very good, there being four large engines, of which we may have occasion to speak hereafter, beside a good number of small ones.

R. W. Wilde, 20 Cortland street, N. Y., exhibits a Shapley portable engine of good design. The boiler is its most noticeable feature, great pains having been taken not only to make a good, but an economical, boiler. There are 5 sizes, ranging from 3 to 15 horse-power.

W. D. Russell, 18 Park place, N. Y., has two Baxter engines at work.

Ward B. Snyder, of 84 Fulton street, has a "Little Giant" one horse-power engine running; its points we have already mentioned in a previous issue.

Hampson, Whithill & Co. have, beside one of the large engines, a number of small ones with the Rider cut-off.

Messrs. Ransom, Sims & Head, Ipswich, England, exhibit a portable engine with an apparatus for burning straw and similar vegetable fuel. The engine is in many respects a novelty. We think it the first engine of the kind ever exhibited at the American Institute Fairs, and, if we are not mistaken, this is the first one of the engines of this kind exhibited in this country. The boiler and cylinder are jacketed and painted light green. Wheels are of iron and very broad. The engine is mounted on the boiler, the cylinder at the fire-box end. While differing, in many respects, but little from our American practice, this English engine shows wide departures from our general practice in the way in which the details are worked out. The engine will be found very serviceable in many parts of the country, especially at the West, where straw is abundant. The straw burning apparatus can be readily detached when it is desired to use coal.

Beside metaline exhibited by the American Metaline Co., 61 Warren street, N. Y., we have another candidate for public favor, in the shape of "antifrictionate," in W. W. Smalley, 208 Broadway, N. Y. This is an anti-friction material made into a solid mass, so as to form the interior or wearing surface of a bearing. It does not require lubrication of any kind, and is not injured by oil or water. We could not get particulars in regard to this exhibit, as there was no one in charge of the cases. The samples looked promising.

Can a Manufacturer Use His Own Name in Trade.

The Court of Appeals has rendered a decision in the long conducted suit of E. A. & E. R. Meneely, of West Troy, against C. H. Meneely and Geo. H. Kimberly, of Troy, bell founders. The case is one involving a point of much interest to our readers, and we give the decision of the Court in full:

COURT OF APPEALS—*Edwin A. Meneely, et. al.*, Appellants, against *Clinton H. Meneely, et. al.*, Respondents.

John H. Reynolds, for Appellants.

Irving Browne, for Respondents.

RAPALLO, J.—The injunction awarded by the decision of the referee restrained the defendants from in any way using the name and designation "Meneely" in the business of bell founding in the City of Troy.

The name of one of the defendants is Meneely and he was engaged in the business mentioned. The necessary consequence of the injunction was to compel the defendant Meneely either to discontinue his business of bell founding at Troy, or to procure it to be conducted in the name of some other person. He was absolutely prohibited from the use of his own name, in his own business, in any way.

The bare statement of the scope of the injunction would seem to be sufficient to show that it ought not to have been granted, and that the judgment awarding it was erroneous. The cases referred to in its support fall far short of sustaining it. If the defendants were using the name of Meneely with the intention of holding themselves out as the successors of Andrew Meneely, and as the proprietors or managers of the old established foundry which was being conducted by the plaintiffs, and thus enticing away the plaintiffs' customers, and if with that intention they used the name in such a way as to make it appear to be that of the plaintiffs' firm, or resorted to any artifice to induce the belief that the establishment of the defendants was the same as that of the plaintiffs, and, perhaps, if without any fraudulent intent they had done acts calculated to mislead the public as to the identity of the establishments, and produce injury to the plaintiffs beyond that which resulted from the similarity of names, then the cases referred to sustain the proposition; not that a court of equity would absolutely restrain the defendant Meneely from the use of his own name in any way or form, but simply that the court would enjoin him from using it in such a way as to deceive the public and injure the plaintiffs. The manner of using the name is all that would be enjoined; not the simple use of it, for every man has the absolute right to use his own name in his own business, even though he may thereby interfere with or injure the business of another person bearing the same name, provided he does not resort to any artifice or contrivance for the purpose of producing the impression that the establishments are identical, or do any act calculated to mislead. Where the only confusion created is that which results from the similarity of the names the court will not interfere. A person cannot make a trade mark of his own name, and thus obtain a monopoly of it which will debar all other persons of the same name from using their own names in their own business.

This principle is fully recognized in the cases cited on the briefs of counsel. They have been so fully commented upon in the learned opinion of my brother Miller, J., delivered at General Term, that I do not deem it necessary or proper again to review them in detail. A reference to a few of them will suffice: In the case of *Croft vs. Day*, 7 Beav. 84, the intention of the defendants to imitate the blacking manufactured by the plaintiffs under the name of Day & Martin and to sell it as theirs was apparent. The master of the rolls stated: "My decision does not depend on any peculiar or exclusive right the plaintiffs have to use the name Day & Martin, but upon the fact of the defendant using those names in connection with certain circumstances, and in a manner calculated to mislead the public, and to enable the defendant to obtain at the expense of Day's estate a benefit for himself to which he is not in fair and honest dealing entitled. * * * He has a right to carry on the business of a blacking manufacturer honestly and fairly; he has a right to the use of his own name. I will not do anything to debar him from the use of that or any other name calculated to benefit himself in an honest way, but I must prevent him from using it in such a way as to deceive and defraud the public." The form of the injunction was settled after argument. It did not restrain the defendants from the use of their names of Day & Martin, but from selling blacking in bottles having labels so contrived as to represent it to be the same as that sold by the plaintiffs. *Rodgers vs. Nowill*, 5 *Man. Gr. & Scott*, 109, was an action for damages. The defendant used not merely the firm name of the plaintiffs, but their trade mark of a crown with the letters V. & R. on either side above the name, and the verdict was sustained on that ground. *Sykes vs. Sykes*, 3 *B. & Cr.* 541, was a similar action and decided on the same principle. The plaintiff had adopted the mark "Sykes' Patent," which the defendant imitated in order to denote that the goods sold by him were of plaintiff's manufacture; the defendant never had any patent and he imitated the plaintiff's stamp.

In Holloway vs. Holloway, 13 *Beav.* 209, the defendant did not merely sell his pills as "H. Holloway's Pills," but sold them in boxes and with labels and wrappers made in imitation of those of the plaintiff and manufactured for the express purpose of deceiving. The court in that case said: "The defendant's name being Holloway he has a right to constitute himself a vendor of Holloway's pills and ointment, and I do not intend to say anything tending to abridge that right. But he has no right to do so with such additions to his own name as to deceive the public, and make them believe that he is selling the plaintiff's pills and ointment."

The injunction in that case was not against selling pills as "Holloway's pills," etc., but against selling them as such put up in boxes, etc., having labels so contrived or expressed as by colorable imitation or otherwise to represent them to be the same pills, etc., as were sold by the plaintiff.

In *Clark vs. Clark*, 25 Barb. 79, the plaintiff had adopted a device in which was contained the name Clark & Co. The defendant's was a copy of plaintiff's device except that it contained the name of J. Clark, Jr. & Co. The injunction was sustained as to the device, but not as to the name.

In *Faber* vs. *Faber*, 49 Barb., 357, an injunction restraining the defendant from using his own name, as a mark upon his pencils, though interfering with a similar business previously established by another person of the same name, was refused, and I find no precedent for such an injunction. See also, *Burgess* vs. *Burgess*, 17 Eng. L. & Eq., 257, and *Meriden Britannia Co. vs. Parker*, 39 Conn., 450. In the case last cited the plaintiff's trade mark and stamp was "1847, Rogers Bros., A 1." The defendant stamped like goods manufactured by him, "C. Rogers Bros., A 1," and "C. Rogers & Bros., A 1." The plaintiff prayed an injunction against the use of these stamps and of any stamp of which the word "Rogers" or "Rogers & Bros." should form the whole or a part. The court granted the injunction as to the stamp and as to the use of the words "Rogers Bros.," but refused to prohibit the use of the name "Rogers."

In the present case the injunction consists wholly of a prohibition of the use of the name "Meneeley" in any way. It is in conflict with all the cases upon the subject. If the evidence showed an attempt by the defendants, by means of catalogues or by any other contrivance, to induce the belief that the firm of Meneely & Kimberly was the successor of Andrew Meneely, or the manager of the plaintiff's bell foundry, those acts might have been restrained, but no such injunction was granted or asked for. The use of the name "Meneely" in any way was all that was enjoined, and that was the very thing which should not have been enjoined.

We think that the General Term did right in reversing the judgment and ordering a new trial, and the order must consequently be affirmed with costs and judgment absolute rendered for the defendants in pursuance of the stipulation.

All concur.

MILLER J. not sitting.

PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, Oct. 4, 1875.

The fall business holds on better than has been supposed, and there is a fair degree of activity in all departments of business. The State and near-by trade, with the exception of that from the coal counties, is very good. All buyers report stocks exceptionally light, and as prices of all kinds and grades of goods are lower than ever before, the volume of trade cannot but be large. The return of confidence seems more probable than heretofore, and a disposition in stock, mercantile and railroad circles to push matters more vigorously.

The features of the week have not been marked and gossip is dull, at least such as is fit for publication, although numerous rumors are afloat not creditable to the solvency of several concerns. The most unpleasant feature is the discharge by both the Reading and Baltimore and Ohio Companies of a large portion of their force from car and machine shops. The former has discharged some 300 men and the latter over 400 from their shops, and this at the time when winter is approaching, and no other work is likely to be had, is very discouraging to the mechanics and laborers who, for the past three years, have been suffering from short time and reduced wages. A new branch of the Reading Railroad was opened during the week, which is an extension of the Perkiomen Railroad, leaving the main line at Perkiomen Junction, 25 miles from Philadelphia, and running to Emaus Junction, a distance of 38 miles, but giving a saving of distance in the connection with Allentown of 26 miles, and also connecting the Lehigh and Susquehanna valleys by rail in the control of the Reading Company. One of the features of the road is the Leipert's Gap tunnel, under South Mountain, 1700 feet long, and in almost continuous rock, and which presented considerable engineering obstacles.

The launch of the steam sloop-of-war Quinnebaug, from the navy yard, attracted a large concourse in the early part of the week, and was very successful. The ship is a third-class steam sloop like the Swatara and Vandalia, and is named after a sloop-of-war broken up some years since. The keel was laid at the navy yard here three years ago and frame set up, when work was stopped. In April the contract for her completion was given to Neafie & Levy, of the Penn Works. By this firm she has been built and launched, and will be finished and make a trial under steam before being turned over to the Navy Department. The ship is of 910 tons register measurement and of 1840 tons displacement when loaded. Her armament will consist of eight broadside guns, one 11 inch pivot gun and rifles on forecastle and poop, and she will be full ship rigged in addition to her steam propelling power.

To the numerous processes for the preservation of wood, which, under various titles, have for their object the substitution of preservative solutions for the sap, has been lately added a new method now on exhibition in this city. The rapid consumption of timber in our country estimated at the stripping of eight million acres annually, renders any practical process which shall increase the durability of lumber very desirable. The theory on which it is based is that now universally accepted, that the decomposition of the vegetable albumen in the wood is the cause of the decay of fibre. To change the nature of this albumen and render it indecomposable is the problem, and this is to be solved by expelling the sap and substituting an antiseptic compound. In this process the solution used is a compound of iron, zinc and mercury—so said—which is conveyed in tubes to the butt of the log, where, by a hydraulic ring and air tight lid, the surface is covered by a supply of the solution. This solution is then forced by the application of hydraulic pressure through the pores of the wood, expelling or driving the sap before it. The pressure is continued until all sap is expelled, and the solution appears at the further end of the log as well as on the circumference, when the process is completed. Great claims are made for it as a preservative of timber, and of its facility of application to green timber, which must, however, be submitted to the usual test of time before being admitted.

The mention of the name of Mr. G. Dawson Coleman in connection with the vacancy in the position of Secretary of the Interior, makes some notice of this prominent ironmaster timely. Mr. Coleman is very well known in Eastern Pennsylvania, and, indeed, in iron circles throughout the country. Of a family owning large interests in the celebrated Cornwall ore beds, of Lebanon county, Pa., and also the furnaces at North Lebanon, one of which is over one hundred years old, he has been identified with the iron interests of that section since his majority. As a member of the Legislature in early days, a liberal contributor to the cause of the Union in the war, and lately as a member and president of the Board of Public Charities, he has always secured the respect and admiration of his fellow citizens. Of large personal fortune and a retiring disposition, it is extremely unlikely that Mr. Coleman would accept the position of Secretary of the Interior, but if he should there will be an end of Indian Rings and all the attendant disgraceful matters of the Indian Bureau.

The National Coal Mine, near Scranton, Pa., is on fire, and the destruction to coal contained in the vein and to surface property, from caving in of the mine, is very great. A large force of men, after fighting the fire in the mine for two weeks with no success, are now engaged in digging out that portion of it which is on fire, and cutting it off from the surface. This requires cuttings of great depth through hard pan and rock—in some cases to 100 feet. It is believed that by this method the fire can be controlled and the mine saved.

From time to time we hear of renewed experiments in the use of peat as locomotive fuel. The Central Pacific Railroad Company are the latest to try this fuel, and, it is said, with satisfactory results. The peat used comes from an island at the junction of the Sacramento and San Joaquin Rivers, California, and is said to burn freely without any treatment. Any successful manipulation of peat, to enable its use on a large scale, is of the very first importance now, and the attention of inventors should be turned to this end.

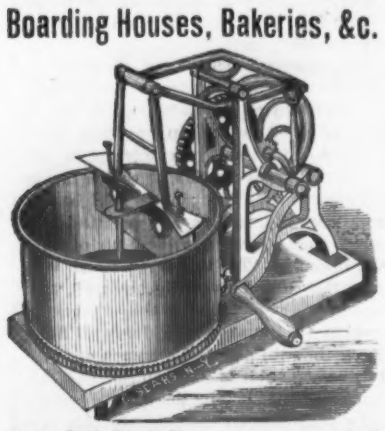
The Centennial is progressing with rapidity and increased interest on the part of foreign countries. Egypt has appointed a commission, and it is expected the arts, products and industries of that country will be well represented. Already preparations are making for large excursions of foreign looking men to attend the Exhibition. One of these from England proposes to furnish tickets for a trip to all the prominent cities of the West, returning by way of Canada and visiting all the principal towns there in addition to the ocean transit and visit to the Centennial. The *Siecle*, of Paris, urges the sending of strong delegations of working men here, for which purpose the Municipal Council of Paris has voted 50,000 francs, and further subscription lists are to be opened. An American manufacturer has applied for space to exhibit some extremely fine machinery for the manufacture of needles, by which the whole process, from the wire to the finished needle, will be shown. The contractor for Memorial Hall, Mr. Dobbins, has finished all the exterior and granite work, and advertises his machinery and heavy steam derricks for sale.

Several novelties in the iron line are before the interested public, among which is a process for accomplishing all that is obtained by the Bessemer steel process with a simple and inexpensive plant, and at, is said, little greater cost than the production of ordinary cupola castings. Should any such result be attained, as is claimed, the matter is of vast importance, but the failure of innumerable steel processes counsels caution as to this also.

The deviation of the compass on iron ships has been for a long time an important subject of scientific investigation. It is now suggested that some of the sudden and heretofore unaccountable changes in the deviations of the compass on such ships are the result of an unequal and varying diffusion of heat over the iron hull. These changes are often unsuspected until they are alleged as the cause of a vessel's getting out of her course and running ashore. There have been sudden slight changes—not exceeding five degrees—noticed on board iron ships on the American coasts, and these are attributed to changes in the hull, caused by the vessel's passing from cold to warm water, or the reverse, as, for example, into and out of the Gulf stream, or to the effect of the sun's rays striking on one side and then changed to the other.

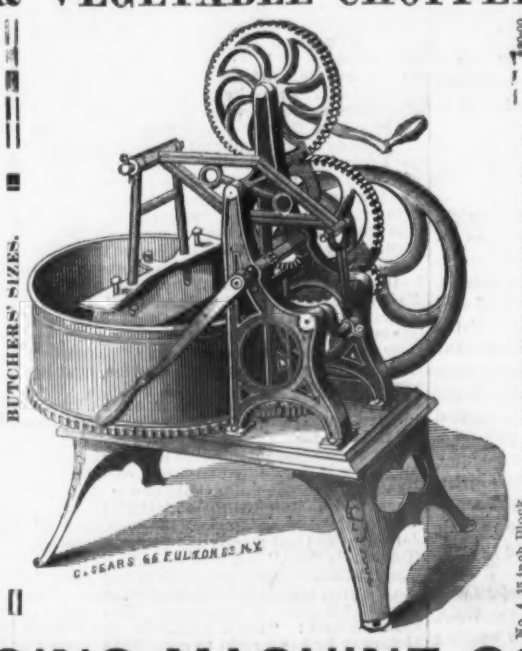
AMERICAN MEAT & VEGETABLE CHOPPER.

(FAMILY SIZES)
For the use of
Families,
Hotels,
Restaurants,
Boarding Houses, Bakeries, &c.



No. 1, Small Family Size.....$6 00
No. 2, Large " " 9 00
No. 2½, Hotel or Bakers' Size..... 12 00
No. 3, Farmers Sausage Cutter..... 15 00

BUTCHERS' SIZES.



No. 4, 15 Inch Block..... 50 00
No. 5, 18 Inch Block..... 60 00
No. 5, 20 Inch Block..... 70 00

STARRETT'S DOMESTIC PRESS

For Pressing
Corned Beef, Boiled Mutton, Tongue, Boned Turkey,
HEAD CHEESE & OTHER MEATS.
And Extracting the Juice from
FRUITS AND BERRIES, for making DOMESTIC WINES, GRAPE and CURRANT JELLIES, &c.

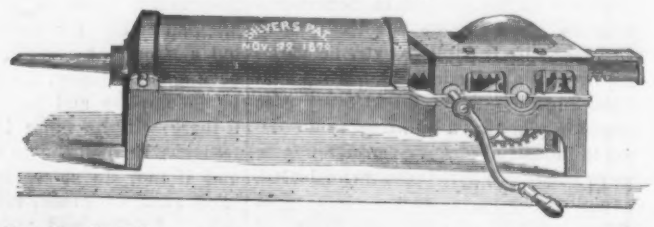
No. 1, Size 6 by 9 and 11 inches deep..... .....
No. 2, " 8 by 12 and 15 " " ....
No. 3, " 10 by 14 and 15 " " ....

Silver's Patent MEAT STUFFERS.

(FAMILY SIZES.)

No. 1, Capacity 6 lbs.....$6 00
No. 2, " 9 lbs..... 9 00

(BUTCHERS' SIZES.)



No. 3, Capacity 12 lbs.....$18 00
No. 4, " 20 lbs..... 25 00

BAILEY WRINGING MACHINE COMPANY, Agents, 106 Chambers St., N. Y.

White Lead, &c.

John T. Lewis & Bros.,
No. 231 South Front St.,
PHILADELPHIA.

TRADE MARK.
MANUFACTURERS OF
PURE WHITE LEAD, RED LEAD, Litharge, Orange Mineral, Linseed Oil
AND PAINTERS' COLORS.

TRADE MARK
The Atlantic White Lead and Linseed Oil Company,
MANUFACTURERS OF
White Lead (Atlantic), Red Lead Litharge & Linseed Oil.
ROBERT COLGATE & CO.,
287 Pearl Street, New York.

Established A. D., 1777.
WETHERILL & BRO.,
Manufacturers of
White Lead, Red Lead, Litharge & Orange Mineral.
Offices, 31st. St. below Chestnut, PHILADELPHIA.

Brooklyn White Lead Co.

TRADE MARK.
White Lead, Red Lead and Litharge.
89 Maiden Lane, NEW YORK.
FISHER HOWE, Treas.

JOHN JEWETT & SONS
Manufacturers of the well known Brand of
WHITE LEAD.

TRADE MARK.
Also Manufacturers of
LINSEED OIL
182 Front Street NEW YORK

"IRON CLAD PAINT."

We manufacture under "Green's Patents," from the purest and hardest iron ores, the best and cheapest Paint in the world for iron, iron workers, bridge builders, tin roofs, woodwork, and anything where a durable paint is needed.
Send for circular and price list.

EMPIRE IRON CLAD PAINT CO., 30 West Broadway, New York.

SOMETHING NEW!

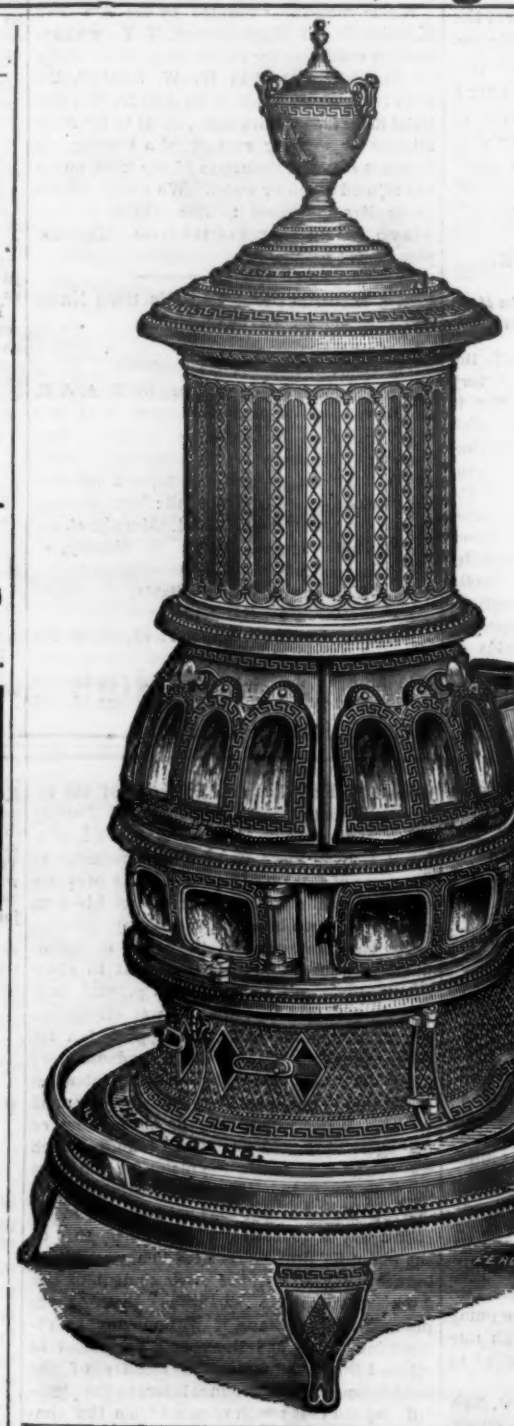
"Zero" Stove Cover Lifter.
Patented July 27th, 1875.
Made in one piece from a superior quality of sheet iron, with a perforated cylindrical handle. Its superior advantages over any other style of cover lifter are manifest, as it will not break or bend, keeps always cool, and will fit any stove cover made. Send for Circular.
EAST RIVER SHEET METAL MFG. CO.,
SOLE MANUFACTURERS, 253 Pearl Street, New York.

STAR CHAIN WORKS,
WHITAKER & SKIRM,
Manufacturers of
CHAINS and Chute Nails,
TRENTON, N. J.

Coil Chain.
Trace Chain.
Breast Chain.
Halter Chain.
Cow Ties, &c., &c.

Car Brake and Safety Chain made to any specified length. Special attention given to Chain for Agricultural Machines.

Rake Chain.
Reel Chain.
Drill Chain.
Stay Chain.
Lock Chain, &c.,&c.



THE ARGAND Base Burner,

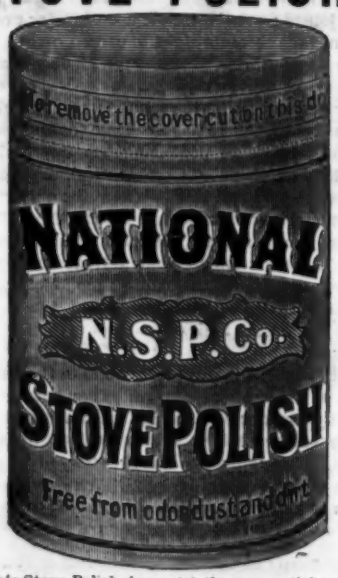
WITH BASE HEATING FLUES,
Patent Clinkerless Grate, And Illuminated Base.
ARRANGED WITH
Spoor's Parlor Stove Furniture
AND THE
New Silver Plated
Foot Warming Rail.

DON'T BE DECEIVED

As a still further proof of the SUPERIORITY and POPULARITY of the Argand over all others, such a demand was created in one season that manufacturers of base burners all over the country were obliged either to make new stoves or alter over in some way the old ones so as to combine some of the essential points and to have them in appearance as much like the **ARGAND** as possible. Some have copied so closely that a person not fully posted, seeing the Argand at one store, and some other at another, would almost vouch they were both the same stove. BUT DON'T BE DECEIVED. By careful observance you can distinguish the difference. Go on the principle that if anything is worth COPYING the ORIGINAL is always the best, and when you get the Argand you get the original.

PERRY & CO.,
ALBANY, 115 Hudson Avenue.
NEW YORK, 86 Beekman Street.
CHICAGO, 15 & 17 Lake Street.

The National
STOVE POLISH.



This Stove Polish is a strictly pure article, free from all adulteration. It will polish with the greatest ease, and give a brilliant and durable lustre.

NATIONAL STOVE POLISH CO.,
74 Pearl Street, BUFFALO, N. Y.

NEW MODEL DERINGER REVOLVER.

22 Cal. 7 Shot.
An exact model of S. & W. No. 1 Revolver.
This arm is Half Nickel Plated, and is equal in style of finish to the best arms in the country. Quality of workmanship and material first-class, and guaranteed in every respect.
Price less than any other Hinge Barrel Cartridge Revolver in the market.
Sole Agents, EDWARD K. TRYON, Jr. & CO., Dealers in FIRE ARMS.
No. 19 North Sixth Street and No. 220 North Second Street, PHILADELPHIA.

Coopers' & Turpentine Tools.

Coopers' Drawing Knives,
Coopers' Adzes and Axes,
Coopers' Froes,
Stocked Croze and Irons,
Coopers' Jointers,
Truss Hoops, all sizes.

Turpentine Hackers,
Turpentine Shavers,
Turpentine Scrapers,
Turpentine Axes,
Turpentine Dippers,
Hacker Stones and Files.

FOR SALE BY
N. WEED, 4 Gold St., N. Y.

REVOLVING SCRAPER CO.,

OF

COLUMBUS, O.

Manufacturers of DOTY'S REVOLVING ROAD and LEVEE SCRAPER

And MAMMOTH RAILROAD PLOW.

FOR

Earthwork, Excavations & Embankments

OF ALL KINDS,

ROAD MAKING,

DITCHING,

and DRAINING,

Byrkett & Clyde,

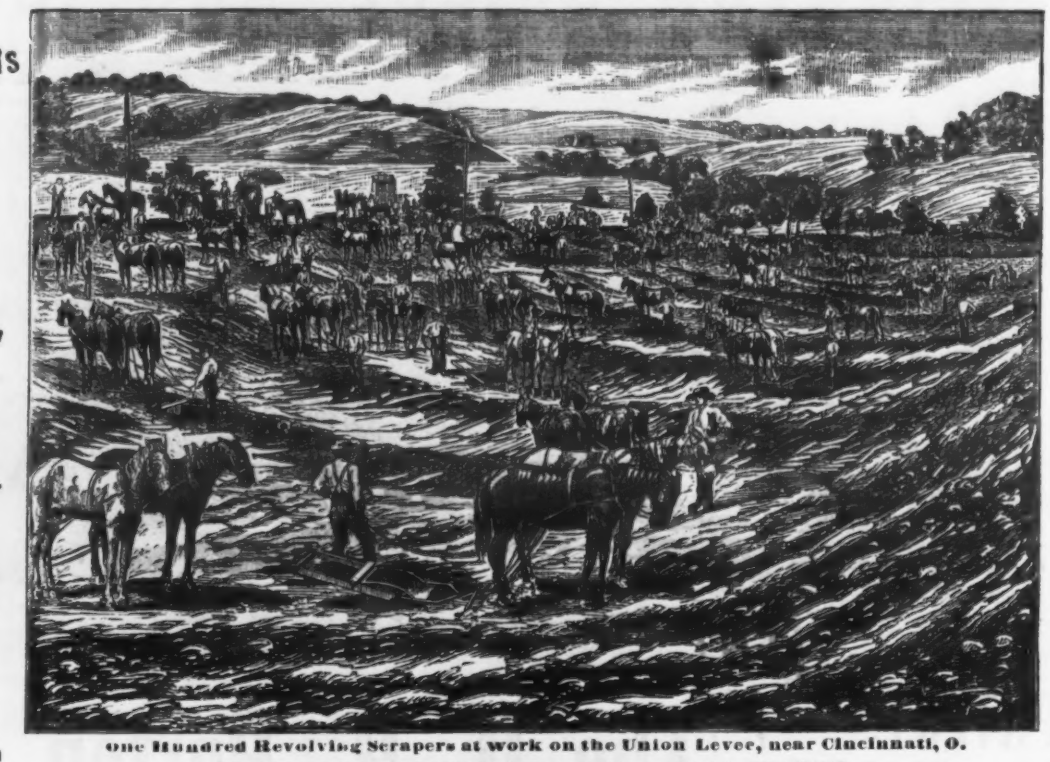
STOCKTON, CAL.,

Sole Agents

FOR THE PACIFIC COAST.

A Full Stock constantly on hand.

SEND FOR PRICES.

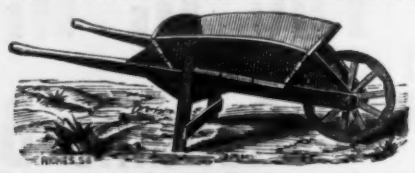


One Hundred Revolving Scrapers at work on the Union Levee, near Cincinnati, O.

SEND FOR CIRCULARS AND PRICE LISTS.

Doty's Revolving

Iron or Steel Bottom.



Jacob's Patent Self-Oiling R. R. and Canal Barrow.

20,000

ALREADY IN USE!

Strongest,

MOST DURABLE AND CHEAPEST.

SAVES

TIME, MONEY AND LABOR

W. C. Allison & Sons,

PHILADELPHIA, PA.

Sole Agents for

Eastern Pennsylvania, New Jersey and Delaware.

A FULL STOCK CONSTANTLY ON HAND.

Send for Prices.

Doty's Revolving

Wood Bottom.

Office, Room 5, Deshler Building, corner High and Town Streets, Columbus, O.

HISCOX FILE MANUFACTURING CO.

WEST CHELMSFORD, MASS.

FILES & RASPS

OF EVERY DESCRIPTION, ALSO ALL KINDS OF

MACHINE — RAG
MOULDING — STRAW
VENEERING — PAPER OR
LOG WOOD — TRIMMING

KNIVES

ADDRESS HISCOX FILE MANUFACTURING Co

WEST CHELMSFORD, MASS.

J. CLARK WILSON & CO.,

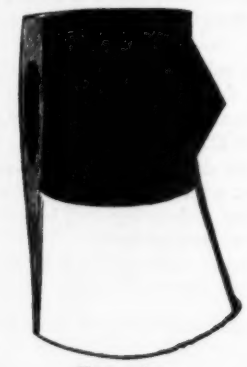
P. O. Box 2355. 81 Beekman St., New York.

The Axe for the Season of 1875 and '76.

H. CLARK'S CAST STEEL AXES.

Every Axe fully Warranted.

Western Beveled'



Kentucky.

Rockaway Pattern.

Long Island.

New Jersey'

BRONZED OR RED.

Price per dozen.... .....$11 00 net cash. Beveled Axes.... .....50c per dozen ext

☞ Send a Sample ORDER. ☜

V. G. HUNDLEY.

79 Reade Street, New York. Agent for

North Carolina Handle Co.,

(WILSON & SHOBER, Proprietors.)

Manufacturers of *SPOKES, AXE, PICK, SLEDGE, HAMMER, HATCHET,* and other *Handles.* Full assortment always on hand.

WILLIAM A. DODGE,

Commission Hardware,

96 Chambers Street, New York City,

AGENT FOR

American File Co.'s Files.
J. M. King & Co.'s Stocks and Dies.
Blake Bros.' Butts, Pulleys, &c.
Greenfield Tool Co.'s Planes.
M. S. Brooks' Screw Eyes, Hooks, &c.
Watson & Co.'s Cotton, Wool & Horse Cards.
Thrall's Try Squares, Bevels and Rules.
J. P. Verree's Hammers and Edge Tools.
Judd & Blakeslee's Snaps, Sash Fasts, &c.
H. Wilkinson's Miscers and Screw Drivers.
Bliss & Co.'s Hand and Bench Screws.
T. T. Rhodes' Saw Plates.

American Screw Co.'s Rivets and Screws.
Stillman's Saw Sets.
Dodge's Kentucky Cow Bells.
Holroyd & Co.'s Stocks and Dies.
C. S. Grieswold, Augers and Bitts.
Kemer & Co., Pad Locks.
Wm Cleveland, Star Faucets.
Bullock's Babbitt Metal.
Cowles' Hardware Co. Miscers, &c.
Robbins' Cotton Lines.
Smidens' Braces.

W. C. BOONE,

26, 28 and 30 Humboldt St., cor. Debevoise, Brooklyn, E. D., N. Y. Manufacturer of Standard

TURNED MACHINE SCREWS.

Case-Hardened Set, Cap and Gibb Screws, Hexagon, Collar, and Drilled Head Screws, Agraffes and Nose Bolts, Special Screws, Rivets, &c., made to order of Iron, Steel or Brass. Also Brass Knobs of all kinds made to order. Our Screws are made of the Best Low Moor or Norway Iron, and are uniform in size.

TACKLE BLOCKS.

BURR & CO

Manufacturers of Waterman and Russel'

PATENT IRON STRAPPED BLOCKS.

ALSO, MANUFACTURERS OF

ROPE STRAPPED BLOCKS,

81 PECK SLIP, NEW YORK

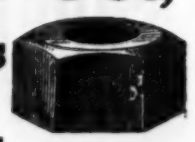
NEW HAVEN NUT CO.,

MANUFACTURERS OF

HOT PRESSED NUTS

Of Superior Quality of all sizes, both

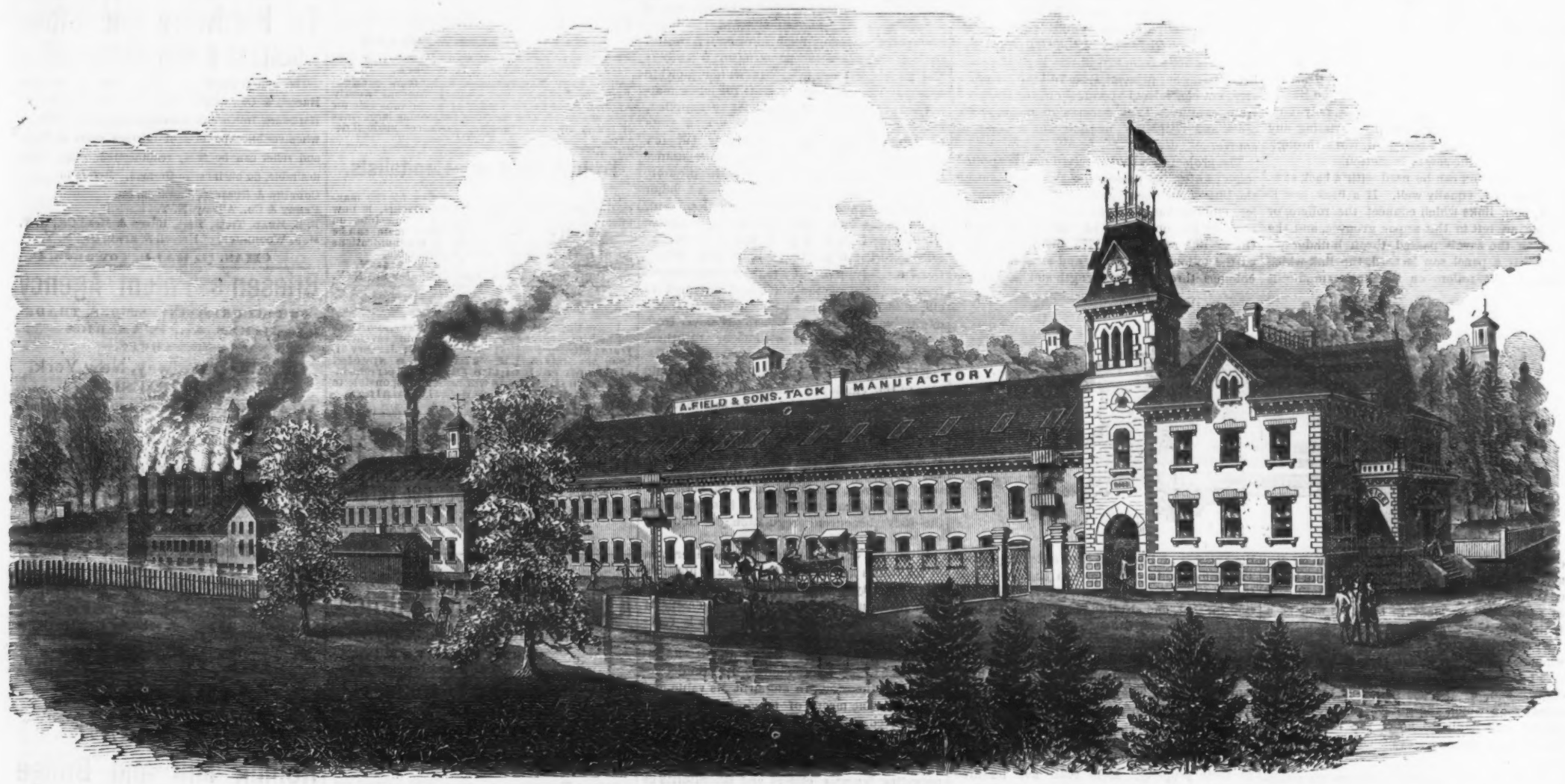
HEXAGON & SQUARE,



From ¼ inch to and including 1¼ inch Bolt.

Factory and Office. - - - - - WESTVILLE, CONN.

ESTABLISHED 1827.



ENTIRE LENGTH OF WORKS, 700 FEET.

A. FIELD & SONS,

TAUNTON, MASS.

Manufacturers of

TACKS

IRON
COPPER
TINNED
SWEDES IRON
UPHOLSTERERS'
CARD CLOTHING
PAIL AND TUB
GIMP
LACE
PATENT COPPER PLATED
LARGE HEAD CARPET

FINISHING
TRUNK
CLOUT
CHAIR
CIGAR BOX
HUNGARIAN
HOB
SILVERED OR JAPANNED LINING
SILVERED OR JAPANNED SADDLE
TUFTING
COPPER CUT

LEATHERED CARPET
TINNED CARPET
COLORED COATED CARPET
COFFIN LINING
MINERS'
BRUSH
LOOKING GLASS
SHOE OR LASTING
ROUND HEAD
ROOFING
EVERY STYLE OF

NAILS

BOAT REGULAR
BOAT CHISEL POINTED
FINE TWO PENNY
FINE THREE PENNY
PATENT COPPER PLATED
CHANNEL
AMERICAN IRON SHOE
SWEDES IRON SHOE
ZINC SHOE
STEEL SHOE
CHARCOAL IRON SHOE

BRADS AND PATENT BRADS.

With New, Improved, and Patented Machinery, we shall now make

GLAZIERS' POINTS,

ONE OF OUR SPECIALTIES.

Any variation from the regular size or shape of the above named goods made from samples to order.

QUALITY GUARANTEED TO BE SATISFACTORY.

OFFICES AND FACTORIES. - - - - - - TAUNTON, MASS.

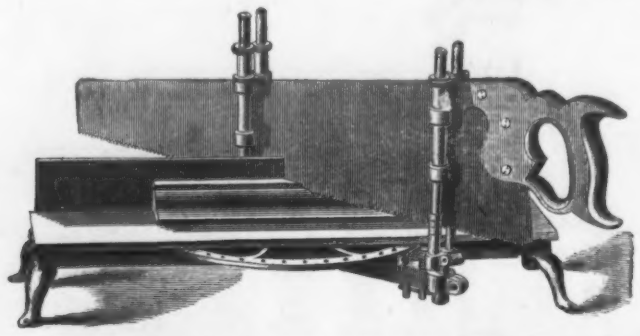
Warehouse and Salesroom at 78 Chambers Street, New York.

Patent Improved Mitre Box.

The peculiar features which distinguish this mitre box are referred to below :

The frame is made of a single casting, and is subject to no change of position ; being finished accurately at first, it must always remain true. The slot in the back of the frame, through which the saw passes, is only one-eighth of an inch wide, thereby obviating any liability to push short pieces of work through the slot, when the saw is in motion.

This mitre box can be used with a back saw, or panel saw, equally well. If a back saw is used, both links which connect the rollers, or guides, are left in the upper grooves, and the back of the saw is passed through under links. If a panel saw is used, the link which connects the rollers on the back spindle is



changed to the lower groove, as shown in the accompanying engraving ; and then the blade of the saw will be stiffly supported by both sets of rollers, and be made to serve as well as a back saw.

By slightly raising or lowering the spindles, when necessary, the leaden rolls at the bottom may be adjusted to stop the saw at the proper depth ; and, by the use of a set screw, the spindles on which the guides revolve may be turned sufficiently to make the rollers bear firmly on the sides of a saw blade of any thickness.

The Stanley Rule and Level Co. are the manufacturers of this mitre box, and the prices are referred to in our Trade Report, in another column.

A Century Ago.

A writer in the Philadelphia *Ledger* calls up the following Centennial reminiscenses : The first act of the Continental Congress in relation to maritime matters was the passage of a resolution on the 13th of October, 1775, directing the purchase and equipment of two vessels, one of 14 and the other of 10 guns. The specific object for which these vessels were to be used was the capture of transports bringing supplies for the British army. As in most other cases, during this early period in the history of Congress, that body rather followed than led public opinion. Prudence was an essential, and caution required to be exercised, lest the Continental Congress should push farther than the people would be prompt to follow. Already the colonists in New England had fitted out privateers, not waiting even for the sanction of the Provincial Legislatures ; and General Washington had also authorized and commissioned several small vessels to proceed to sea, for the capture of public property and military and naval stores. Private property was respected.

The success of the naval expeditions during the Revolution seems, at this late day, something wonderful. In the paucity of official records the facts are hard to collect and their importance is underestimated. During the occupation of Boston by the British, when terminated in March, 1776, 34 vessels of various sizes were captured, their measurement amounting to nearly 4000 tons. The cargoes were of vast value to the colonists. These captured vessels were bound for Boston. And for two or three months after the evacuation of Boston by the British the same success of the privateers continued. Thirty vessels more were taken, all bound for Boston. In these days of the ocean telegraph this sailing with supplies to an abdicated military post reads strangely. But it is one of the illustrations of what changes a century has wrought.

The success and services of the privateers in the Revolution are summed by the historian Knapp. Down to the year 1780 the number of British vessels captured amounted to 1200. Of these it is estimated over half were brought in. After the Declaration of Independence the privateers were not restricted to the capture of public vessels. The merchandise brought into the American ports "gave an elasticity and spirit to the people that nothing else could have given. It gave them wealth also" (we are quoting Knapp) "through the medium of enterprise and valor. The seaports were full of the bustle of preparation for crusing and for the reception of prizes. * * * This success inspired the army likewise ; for they saw that sailors of a new creation could meet and dared fight the hardy sons of Neptune born in Old England and educated in the best of fleets in the world." This hearty appreciation of privateering hardly coincides with the present sentiment upon the subject. But it was written forty years ago, and refers to events now a hundred years past. Cooper, a competent judge, in his naval history, says : "Much as has been said and written on this subject, the world scarcely seems to possess an accurate notion of the embarrassments to which the Americans were subject, in consequence of deficiencies in warlike supplies. The first important relief was obtained through the cruisers, and it is scarcely saying too much to add that, without the succors that were procured in this manner during the years 1775 and 1776, the revolution must have been checked at the outset." It may be well here to notice the charge which has been brought against the United States government, that it has refused to enter into treaty stipulations against privateering. Such has been the policy of the United States ; but it has been followed in the hope of establishing a higher principle—that *all* private property, not contraband of war, should be excepted from capture. That concession made, privateers and letters of marque would cease, of course.

The project of a navy received an unexpected impetus after the passage of the resolution on the 13th of October. Several affairs of more or less moment had occurred on the New England coast by the operations of the British vessels. On the 18th of October, 1775, the British decided the action of Congress, and exasperated the colonies through their length and breadth by the burning of Portland, then called Falmouth. The inhabitants of Falmouth had obstructed the loading of a vessel with spars. In retaliation for that, and also for the repulse of a British party in boats, which had attempted to take out a vessel from Gloucester, a British squadron appeared off Falmouth on the evening of the 17th of October, and warned the inhabitants to leave. They obtained delay for the night, and on the next morning, having removed their effects, the people of Falmouth, standing on the hights near the town, were spectators of the bombardment and destruction of their property. More than five hundred houses and stores were destroyed. The tidings of this disaster reached Philadelphia, where the Congress was in session. That body followed up the passage of the first naval resolution by the enactment of a general prize law, with authority to capture all British vessels in any way connected with the operations of the British forces.

Thus cautiously did the Congress still proceed, careful yet to leave the possibility open of a return to their allegiance upon redress of their grievances. The actual establishment of a navy came later. As an item of local interest, it may be mentioned that in the Delaware the first ensign ever shown by an American man-of-war was hoisted by John Paul Jones, first lieutenant of the Alfred, a vessel carrying 24 guns. The present flag of the Union was not adopted till 1777. The Alfred's flag, tradition says, bore the device of a pine tree, with a rattlesnake coiled at its root, and bearing the motto, "Don't tread on me."

A Suggestion to Trade Unions.

A writer in the *Daily Bulletin* of this city, offers the following practical and sensible suggestions to trade unions :

The annual report of the Massachusetts Bureau of Labor Statistics shows very plainly how much labor suffers from its uneven distribution. The evil is a serious one in every aspect, and it seems remarkable that the trades unions should never have attempted any practical remedy for it. Strikes are the rough and ready panacea for everything unpalatable ; and these are applied without discrimination as to the cause of the trouble, or the nature of the remedy called for. It is undeniable that there are occasions when operatives in a given locality receive less for their labor than it is worth to the employers and less than it would bring elsewhere ; but these are exceptionable instances caused by an excess of hands in that particular locality ; and this exception does not invalidate the rule that labor, like any commodity, will always command what it is worth to those who use it. If it brings more it impoverishes the employers, who consequently have either to suspend or to reduce production, with consequent injury to the employes ; if it brings less, then the profits of employers are so far increased that production is augmented, with the result of greater competition for hands and a rise in wages to the full standard of what employers can afford to pay. This law infallibly governs the labor market. Strikes may temporarily impede its operation ; but in the long run it prevails, and the temporary interruption through strikes can have no other effect than to embarrass employers, to deprive employes of earnings through idleness, and to injure the whole community through a partial suspension of production. For this reason the means at present employed by the unions for regulating the labor market must be a failure. When it succeeds, the success would come just as certainly without a strike ; when it fails—which it does in a large majority of cases—it inflicts serious injury on every interest, and on the operatives especially.

Nevertheless, we are not to conclude that trades unions may not be made very serviceable for the regulation of the labor market. The true policy is to attempt to regulate wages and employment not by forcible edicts, but by promoting an intelligent comprehension of the state of the labor market, especially as respects the condition and requirements of trade, the relative supply of labor in the different branches of employment, distribution of labor and the current rate of wages in the same trade in different localities, and the costs of living in the different localities. Were the unions in the several trades to establish bureaus of correspondence and information for the purpose of acquiring from time to time exact knowledge on these points they would secure the means for the most perfect regulation of the labor market conceivable. Such information would show at a glance where labor received its best and its poorest rewards. It would indicate where and in what employments the labor market is over supplied or insufficiently supplied, and would thereby remedy the occasional gluts to which localities are periodically subject. The bureaus should have relations with similar agencies in other countries, so as to promote a migration and even distribution of labor even between the different nationalities. But, to make the information practically available within our own country, it would be well to establish what might be designated a "migration fund," supported by regular contributions from members of the union and designed to aid, under certain conditions, members who might voluntarily desire to remove from localities over supplied with labor to others less adequately supplied.

Knowledge of the kind thus aimed at would give to the employed classes the same exact acquaintance with the labor market that the merchant finds it necessary to possess respecting the markets with which he is concerned. It would remedy a thousand irregularities in the labor market, promote uniformity in wages, prevent gluts of labor in particular localities and trades, and would in short afford the only beneficent regulation of labor of which it is capable.

It is also well deserving the consideration of the trades unions whether they may not, in a joint capacity, promote a better education, of their junior members at least, in the details of their respective employments. This is especially desirable in trades that require skill and intelligence. To improve the quality and intelligence of labor is to increase its productiveness, and, therefore, to augment its value and rewards. The means of promoting such cultivation need not be beyond the reach of those desiring it. Books, periodicals and libraries might be made contributory to such education ; and institutions like the "mechanics institutes" providing lectures, classes and laboratories or workshops might be so conducted as to supply yet more. It is this kind of education which is calculated to qualify our working classes for rising from the position of mere sellers of their labor to that of principals and employers ; a sort of progress of which there has been a lamentable lack since the policy of enforcing uniform wages through strikes was adopted. An effort to secure such objects as we have indicated would, we are sure, command the support of the press and the sympathy of the employing class, and would infinitely more promote the welfare of the working masses than the blind policy of strikes, by which they have arrayed themselves against every other class and interest, and have established in idea an antagonism between capital and labor which does not and cannot really exist.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Oct. 6, 1875.

From all parts of the country we hear encouraging reports of continued improvement in general trade and a revival of confidence. This is especially true of the Pacific Coast, owing to the resumption of business by the Bank of California, with an ample capital and a guaranty fund of $7,000,000. During the past month all the banks which closed their doors when the Bank of California failed, have resumed, and legitimate business seems to have received no permanent injury from the brief panic precipitated by that event.

The local money market has developed a tendency to somewhat greater firmness, the rate on call loans having advanced from 1½ to 2¾ per cent., and in some instances 4 per cent. For prime business paper the discount rate is 5 @ 7 per cent. Collections are generally reported easy, especially in the West. In both South and West trade is in a sound condition, and everything favors the slow but sure recovery which is now taking place. Too rapid a recovery would not be favorable to the best interests of the country, and the outlook is now as favorable as we have any reason to expect, when the general situation of affairs at home and abroad is considered.

The bank statement shows a loss in total reserve of $1,651,600, and in surplus reserve of only $392,650. The following is a comparison of the averages of the past two weeks:

	Sept. 25.	Oct. 2.	Differences.
Loans	$281,616,300	$278,641,300	Dec.. $2,774,900
Specie	7,269,200	6,448,900	Dec... 820,300
Legal tend's	67,321,900	66,490,600	Dec.. 831,300
Deposits	239,439,400	234,403,600	Dec.. 5,035,800
Circulation	17,934,300	17,925,800	Dec.. 8,500

The gold market has continued under the influences noted last week, the premium ranging between 117⅝ and 116¾. Borrowers have paid ⅛ per day for its use. The New York banks hold only some 6½ millions, and although some coin has been received here from Europe the amount has not been great enough to relieve the market perceptibly. The following shows the extreme daily range of the premium:

	Highest.	Lowest.
Thursday	117⅛	117
Friday	117	116⅞
Saturday	117⅛	116⅞
Monday	117⅛	117
Tuesday	117⅛	117⅛
Wednesday	117⅛	116⅞

In the stock market the bear interest has predominated, and the influence of speculation has tended to depress prices. The principal dealings have been in Lake Shore, Western Union, Erie, Pacific Mail, Northwest and Union Pacific. We give below the closing quotations of active shares.

Government bonds are strong here and in London. The Syndicate seem to be doing very well with the new 5's, as the Secretary of the Treasury called in the first of the month five millions more of 5-20's, half coupon and half registered, with notice that interest would cease January 1st. We give below the closing quotations of governments.

The foreign trade movements for the week are shown in the following tables:

IMPORTS.

	1873.	1874.	1875.
Total for week	$7,764,447	$6,632,465	$4,983,203
Prev. reported	308,211,676	302,940,607	256,912,626
Since Jan. 1	$315,976,123	$309,573,072	$261,895,892

Among the imports of general merchandise were articles valued as follows:

	Quant.	Value
Anvils	200	$2,254
Brass goods	10	1,441
Bronzes	49	13,114
Chains and anchors	110	5,042
Copper		377
Cutlery	79	32,741
Guns	78	14,978
Hardware	34	5,349
Iron, pig, tons	300	7,090
Iron, cotton ties	922	2,596
Iron, other, tons	98	1,168
Iron ore, tons	800	461
Metal goods	123	18,045
Nails	2	184
Needles	14	9,601
Old metal		981
Platina	1	4,162
Per. caps	12	1,112
Saddlery	6	1,250
Steel	2,369	20,839
Tin, boxes	13,174	91,087
Tin, 25 slabs	11,200	2,116
Wire	43	2,044
Zinc	55,654	3,444

EXPORTS OF SPECIE.

Total for the week	$531,764
Previously reported	8,800,150
Total since January 1, 1875	$9,331,914
Same time in 1874	4,867,565
Same time in 1873	6,424,429
Same time in 1872	4,974,009

Government bonds at the close were quoted as follows:

	Bid.	Asked.
U. S. Currency 6's	124½	125
U. S. 6s 1881, reg.	121¾	121¾
U. S. 6s, 1881, coup.	123¾	123¾
U. S. 5-20 1862, reg.	115¾	—
U. S. 5-20 1862, coup.	119	—
U. S. 5-20 1864, reg.	115	116
U. S. 5-20 1864, coup.	119¼	119¾
U. S. 5-20 1865, reg.	119¼	116¾
U. S. 5-20 1865, coup.	119¾	120
U. S. 5-20 1865, reg. new	119¾	119¾
U. S. 5-20 1865, coup.	120¼	119¾
U. S. 5-20 1867, reg.	120¾	120¾
U. S. 5-20 1867, coup.	121¼	121
U. S. 5-20 1868, reg.	121¾	121¾
U. S. 5-20 1868, coup.	121¾	119¾
U. S. 10-40 reg.	117¾	117¾
U. S. 10-40 coup.	117¾	117¾
U. S. 5s, 1881, reg.	118	118¼
U. S. 5s, 1881, coup.	118	118¼

The latest sales and closing quotations were as follows:

	Bid.	Asked.
Atlantic & Pacific Preferred	6¼	6⅝
American District Telegraph	34¾	30
Atlantic and Pacific Telegraph	18	18¾
Chicago & Northwestern	38¾	38¾
" " Pref.	53¾	53¾
Chicago, Rock Island and Pacific	103¾	103¾
Chicago, Bur. & Quincy	111¾	111¾
Col., Chic. & Ind. Cent.	3¾	4
Clev., Col., Cin. & Ind'a	47¾	48¾
Cleveland and Pittsburgh	90¾	90¾
Chicago & Alton	96½	98
" " Pref.	101	104
Consolidated Coal	45	45¾
Canton	45	50
Del. Lack. and Western	118	118¾
Delaware & Hudson Canal	119	120
Adams Express	101	101¼
American Express	57½	58
United States Express	43	45
Wells, Fargo & Co. Express	78	79
Erie	17¾	17¾
Harlem	131	132
Hannibal & St. Joseph	17¾	18¾
Illinois Central	97	97¾
Lake Shore	54¾	54¾
Michigan Central	57	58
Morris and Essex	103¾	103¾
Milwaukee & St. Paul	33¾	34
" Pref.	62¾	63
New York Central	102	102¾
New Jersey Central	104½	105
New Jersey Southern	2	3
Ohio & Mississippi	16½	16¾
Pacific Mail	36	36¼
Panama	130	135
Pittsburgh & Fort Wayne	98	98½
Pacific of Missouri	23¾	24
Quicksilver	15¾	16
" Pref.	20	21
St. Louis, Kan. City Northern	4½	5¼
" Preferred	27½	28½
Tol., Wabash & Western	6¾	6¾
Union Pacific	61¾	62
Western Union Telegraph (ex'd)	76¾	76¾
N. Y., N. H. and Hartford	114	145

GENERAL HARDWARE.

The volume of business transacted during the week is light for this season, and the almost total absence of buyers from the city is a matter of considerable comment. In times like these, when the strictest conservatism is the policy of buyers, those houses who depend largely upon traveling salesmen are better employed than establishments who look to the periodical visits of their customers for the bulk of their trade.

The changes which have occurred during the week are few and of trifling importance.

The market for Nails continues fairly active, but without any speculative tendency. We quote same as last week, $3·10 @ $3·20, net, for 10d., according to quantity.

The Stanley Rule and Level Company offer to the trade a Patent Improved Mitre Box, for which they claim superiority in some of its features. We give an illustration and brief description of this Mitre Box on page 20. They are sold as follows: Mitre Box, 20 inches, $7; Mitre Box, 20 inches, with 20 inch Disston's Back Saw, $10; discount 20 and 10 per cent.

The following circular explains itself:

TO THE GENERAL HARDWARE TRADE.

Our factory having been totally destroyed by fire, June 18th, together with all our stock, machinery, tools, &c., compelled us to rebuild on the old site or locate elsewhere. We chose the latter, and have now secured a never failing water power, thereby entirely dispensing with steam power, which will enable us to make goods cheaper than heretofore, and of which we shall give our patrons the benefit.

Our new factory is now completed and entirely refurnished with new and improved machinery, tools, &c., which will enable us to make our Patent Solid Steel Blade Shears, Scissors, &c., in a better manner than before, and as we have doubled our capacity, shall be able in a short time to fill all orders as soon as received.

Our goods are warranted to be equal to any in the market, and will be sold at the following

DISCOUNTS.

On Straight Trimmers, Bent Trimmers, Ladies' Scissors, Pocket Scissors, Button Hole Scissors, Barbers' Shears and Bankers' Shears:

On orders of	25 to 50	dozen	75 %
" "	50 to 75	"	75&5 %
" "	75 to 100	"	75&10 %
" "	100 to 125	"	75, 10&5 %
" "	125 to 150	"	80 %
" "	150 to 200	"	80&5 %

On all other goods a proportionate reduction will be made.

Solid Steel Blade Pruning Shears and Eureka Cast Shears a specialty, on which net prices will be given on application.

Terms cash, 30 days. For larger lots special discounts and terms will be given on application. All goods delivered in New York, freight prepaid.

Our former patrons who may have bought any of the above amounts during the spring trade, will be entitled to the discounts as above on any orders which they may favor us with. New customers will be allowed a drawback on January 1st, and semi-annually thereafter, to give them the lowest discount they may be entitled to as above. Thanking you for the past, and hoping to be favored with your future commands, which will have prompt attention, we remain, Yours, truly,

THE RENZ SHEAR CO.

NAUGATUCK, CONN., Sept. 15, 1875.

Trade in Foreign Hardware is quiet and prices are without quotable change. We have received the following circulars:

82 CHAMBERS STREET,
NEW YORK, Sept. 30th, 1875.

DEAR SIRS: I beg to inform you that I have this day retired from business, and that Messrs. F. & W. Clatworthy succeed me, and now represent, as I did, the firms of Joseph Rodgers & Sons (limited), W. K. & C. Peace and W. C. McEntee & Co.

In taking leave of my many friends, I can only say that I regret the state of my health compels me to do so, my business connection having been so pleasant to me. I cannot allow this opportunity to pass without thanking you for past favors, and commending to your favorable consideration my successors. They have been with me for nearly ten years, and during that time have had largely to do with the management of the business; and I have every confidence that any orders you may intrust to their hands will have the same attention in the future as in the past.

With kind regards, I remain,
Very respectfully, yours,
CHAS. PEACE.

October 1st, 1875.

DEAR SIRS: Referring to the above, we have the pleasure to inform you that we have this day formed a copartnership under the firm name of F. & W. Clatworthy, continuing the business lately conducted by Mr. Charles Peace.

We shall continue to represent the houses of Joseph Rodgers & Sons (limited), and W. K. & C. Peace, of Sheffield, and W. C. McEntee & Co., of Birmingham, and, in soliciting your favors for the future, we can only assure you of our desire to deserve the confidence which you have so long bestowed upon our predecessor, and remain, yours, very respectfully,

FRANK CLATWORTHY,
WILLIAM CLATWORTHY.

Edward Barr, favorably known to the trade for many years in connection with the house of Morris, Tasker & Co., has commenced business at No. 78 John street on his own account. He has been appointed by W. C. Allison & Sons, of Philadelphia, as their agent in this city for the sale of Boiler Tubes, Lap Welded Steam Pipe, Railway Supplies, &c. He quotes Wrought Iron Tubes at discount 40 per cent. from manufacturers' list of May 24, 1875.

G. B. Walbridge & Co. have taken the agency for E. Andrews' Patent Hand Saws, which they quote at the following list, which is subject to discount 10 per cent:

18 inch	per doz.	$18·50
20 "	"	20·50
26 "	"	24·50
29 "	"	29·00
30 "	"	32·00

Some months ago we published a descriptive article, with illustration, of these goods, the novel points of which are thus described in their circular:

The Saw Blade is extended through the handle to that part held by the hand. By thus embedding the Saw Blade in the handle, all the weak parts of the wood are protected against breakage from an accidental blow or fall; and the two additional screws through the part held by the hand prevents the handle from getting loose.

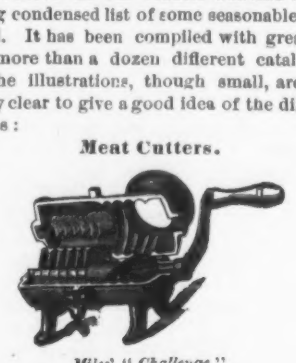
Handles getting loose have always been a source of annoyance to the mechanic, and the breakage of handles has caused an expense that is sometimes more than the cost of a new saw.

By the improvement, strength and firmness are imparted, without marring the symmetry or altering the general appearance of the handle.

They also have in stock E. Andrew's Patent Spring Steel Self-Straining Wood Saws, which they offer to the trade at $13 per dozen, net.

We believe all our readers will find the following condensed list of some seasonable goods useful. It has been compiled with great care from more than a dozen different catalogues, and the illustrations, though small, are sufficiently clear to give a good idea of the different articles:

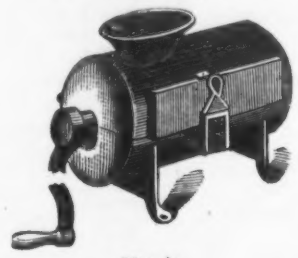
Meat Cutters.



Miles' "Challenge."

No	1	2	3
Per doz	$22·00	30·00	40·00

Discount 30 @ 33⅓ per cent.



Dixon's.

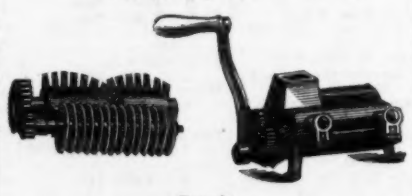
No	1	2	3	4
Per doz	$14·00	17·00	19·00	30·00

Discount 20 @ 25 per cent.

Woodruff's.

No. 100	Per doz., $15·00
No. 150	" 18·00

Discount 20 @ 25 per cent.



Perry's.

No	200	300	400
Per doz	$22·00	27·00	40·00

Discount 20 @ 25 per cent.

Hale's.

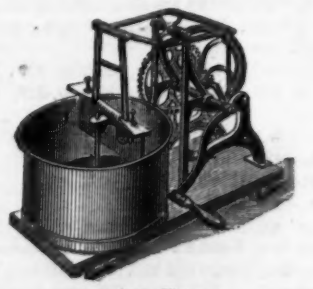
No	11	12	13
Length of Cylinders	5 in.	6 in.	7¼ in.
Per doz	$27·00	33·00	42·00

Discount, 35 & 2 per cent. cash.

Haven's.

No	1	2	3	4
Knives	16	20	24	32
Per doz	$13·60	15·20	17·60	25·60
Also, Extra	$15·30	17·10	19·80	28·80

Net.

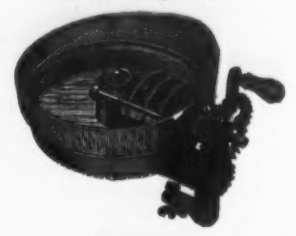


American Chopper.

No. 1, Small Family Size, 8 in. cylinder				each, $6·00
No. 2, Large	"	10 in.	"	" 9·00
No. 2½, Hotel size, 13 in.	cylinder			" 12·00
No. 3, Farmer's Sausage, 12 in.	cylinder			" 15·00
No. 4, Butcher's Size,	15 in.	"		" 30·00
No. B, " "	18 in.	"	with stand	" 60·00

No. 5, Butcher's Size, 20 in.	cylinder	with stand		each 75·00

Discount 25 per cent.



Whittemore's.

Family Size	per doz.	$30·00
Hotel Size	"	72·00

Discount 10 per cent.

Sausage Fillers.

Perry's.

No. 1, Family Size	per doz.	$15·00
No. 0, Butcher's Size	"	21·00

Discount 20 per cent.

Perry's Lever.

Perry's Lever ..... per doz. $15·00

Discount 20 per cent.

Sargent's.

No. 22, Family Size		per doz.	$24·00
No. 24,	Large	"	32·00

Discount 50&10 per cent.

Miles' "Challenge."

Challenge ..... per doz. $20·00

Discount 30 @ 33⅓ per cent.

Haven's "Railroad."

Haven's ..... per doz. $12·75

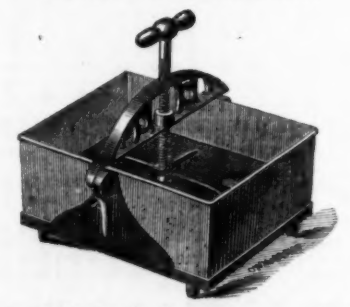
Net.

Silver's.

Silver's ..... each, $30·00

Discount 20 per cent.

Starrett's Domestic Press.



No. 1,	6x 9 in.	by 4 in. deep	each, $3·00
No. 2,	8x12 in.	by 5 in. deep	" 4·00
No. 3,	10x14 in.	by 6 in. deep	" 5·00

Discount 25 per cent.

Cleavers and Choppers.

Beatty's Cleavers.

Inches of Cut	7	8	9	10
Per doz	$14·00	16·50	19·00	21·50
Inches of Cut	11	12	13	14
Per doz	$24·00	27·00	30·00	33·50

Beatty's Choppers.

Inches of Cut	7	8	9	10
Per doz	$11·50	13·50	15·00	16·50

Discount 20 per cent.

Hart, Bliven & Mead's Cleavers.

Inches of Cut	7	8	9	10	11	12	13
Per doz	$25·25	29·75	34·25	38·75	43·25	48·50	54·00

Discount 45&10 per cent.

Mack's or Barton's Cleavers.

Inches of Cut	6	7	8	9	10
Per doz	$15·00	16·00	20·00	24·00	28·00
Inches of Cut	11	12	13	14	15
Per doz	$32·00	36·00	39·00	42·00	45·00

Mack's or Barton's Choppers.

Inches of Cut			8	9	10
Per doz. pairs			$30·00	33·00	36·00
Discount 20 per cent.					
Bradley's Cleavers.					
Inches of Cut	6 Lt.	6 Reg.	7	8	9
Per doz	$11·00	12·00	13·50	16·00	18·00
Inches of Cut	10	11	12	13	14
Per doz	$20·00	23·00	26·00	29·00	33·00
Inches of Cut	15	16	17	18	
Per doz	$37·00	41·00	45·00	48·00	

"Bradley," Discount 25 per cent.
"Westport," Discount 30 per cent.

Bradley's Choppers.

Inches of Cut	6	7	8	9	10
Per doz	$10·00	11·00	13·00	15·00	16·50

Discount 25 per cent.

Humason & Beckley's Cleavers.

No	1	2	3 (Mincing)
Per doz	$15·50	13·00	11·00

Underhill Patent, No. 4, $18·00; No. 5, $16·00 per doz.
Discount 20&10 per cent.

Cowles & Co.'s Cleavers.

No. 1, 7⅛ in. Cut—Weight, 3 lbs.	per doz.	$15·00
No. 2, 6½ in. Cut—Weight, 2½ lbs.	"	12·00
No. 3, 6 in. Cut—Weight, 1¾ lbs.	"	10·0

Discount, 25 per cent.

Mincing Knives.

Single Shank.

G. B. Curtiss',	No. 2	per doz.	$1·25—dis. 20 %
Lothrop's,	No. 2	"	1·50—dis. 15 %
Dunlap's,	No. 10	"	1·50—dis. 30 %
Cowles',	No. 8	"	1·50—dis. 30 %

Braced.

Lothrop's,	No. 1	per doz.	$1·00—dis. 15 %
Cowles',	No. 9	"	1·50—dis. 30 %
Cowles',	No. 15	"	2·50—dis. 30 %
Reed's,	No. 9	"	1·00—dis. 10 %

Braced.

G. B. Curtiss',	No. 3	per doz.	$1·25—dis. 20 %
Dunlap's,	No. 30	"	1·67—dis. 30 %

Square Blade.

Iron Handle.

Cowles',	No. 4, Sq. Blade	per doz.	$4·00—dis. 30 %
Cowles',	No. 5, Rd. Blade	"	3·50—dis. 30 %
Dunlap's,	No. 4, Sq. Blade	"	3·00—dis. 30 %

Double Blade.

Cowles',	No. 10	per doz.	$3·00—dis. 30 %
Lothrop's,	No. 3	"	2·15—dis. 15 %
Dunlap's,	No. 20	"	3·00—dis. 30 %
Reed's,	"Two Blades"	"	1·75—dis. 10 %

Smith's Patent.

Smith's Patent, Tension .. per doz. $3·75—dis. 33⅓ %

Bradley's.

Bradley's ..... per doz. $6·00—dis. 5 %

Solid Steel.

Lothrop's, No. 13 ..... per doz. $4·00—dis. 15

Solid Steel.

G. W. Curtiss',	No. 6	per doz.	$5·00—dis. 20 %
Dunlap's,	No. 7	"	4·50—dis. 30 %
Reed's,	No. 4-0	"	4·00—dis. 10 %
Wilkinson's		"	4·00—dis. 10 %
Union H'dw. Co.'s,	No. 0,	"	3·50—net
Humason & Beckley's,	No. 2,	"	5·50—dis. 20&10 %
Cowles',	No. 0,	"	5·50—dis. 30 %

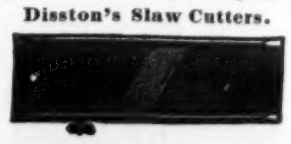
Solid Steel.

Cowles', No. 2 ..... per doz. $6·00—dis. 30 %

Solid Steel.

Cowles', No. 3 ..... per doz. $6·25—dis. 30 %

Disston's Slaw Cutters.



Knives	1	2	3
Per doz	$5·00	$8·50	$9·00

Vegetable Cutters ..... per doz. $3·25

Discount 12½ per cent.

BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

WEDNESDAY, Oct. 6, 1875.

Scotch Pig.—The market has been stronger since last report, but has now given way, and prices are weaker. The following are makers' quotations:

Gartsherrie No. 1	75/6
Coltness No. 1	80/
Glengarnock No. 1	71/
Eglinton No. 1	66/

Manufactured Iron.—The demand continues to improve, and a fair business has been done. Prices are firm.

Rails.—No change to note.

IRON.

American Pig.—The market continues to droop, and it is conceded on all hands that good brands have been offered at less than $25. Some lots of hypothecated Iron have been disposed of during the week in Philadelphia, and were, we understand, all sold for less than our quotations. Efforts are making in all directions to cheapen the cost of producing Iron by the reduction of wages and salaries, cheaper transportation and lower prices for coal. We have been told that in some sections of Pennsylvania the miners of ore have been reduced to 90 cents to a dollar a day, which seems to be reducing the cost to the lowest limit. Sales have generally been confined to small lots as needed by consumers, and we do not hear of any worth reporting. We quote: No. 1 Foundry, $25 @ $25·50; No. 2 Foundry, $23; Gray Forge, $20 @ $22.

Scotch Pig.—The market in Scotland continues steady, though fluctuating. In this market sales of small lots of Coltness are made at $33·50, and we are informed that nothing can be had for less. There is no Glengarnock here. 100 tons Summerlee sold on private terms, and 150 tons Eglinton at $29·50.

Rails.—A good deal of business is doing in the West, but little here. Prices are the same as for some time, viz., $45 @ $50, at mill, for Iron, and $70 @ $73 for Steel. We note the sale of 1000 tons Steel, for next year's delivery, at $73.

Old Rails.—In this line there has been little or nothing done for some weeks, and prices have not been established by transactions. We quote $25 @ $26 as a nominal price. There is no doubt that Rails could be bought at the former figure, and they have been offered at the latter price without takers.

Scrap.—The stock here continues about as at our last writing. We hear of no sales, and the arrivals have been small. We quote: $30 @ $32·50 for No. 1 Wrought.

METALS.

Copper.—A better feeling begins to prevail in our market, the demand for Spot Copper having slightly improved, with greater firmness in values. Sales of Lake Superior have reached during the week 500,000 pounds on the spot, at 23¼c. @ 23⅝c., and the same closes at stiffer rates, say 23⅝c. @ 23¾c. Baltimore may be quoted 23¼c. In futures nothing has been done, manufacturers not being anxious as yet to anticipate wants; their stocks are conceded, however, to be quite moderate. Should the demand for their goods become brisker, and there are some encouraging signs in that direction now, greater liveliness would soon manifest itself. The Houghton, Lake Superior, *Mining Gazette*, Sept. 30, has the following: "The continued firmness of Ingot Copper is gradually having its effect on the producing mines up here. More confident dealers look for a further advance in the price of the metal, which is not at all necessary to permit the most of our mines to work at a profit. A cheerful feature of the market is found in the fact that it is not so sensitive. A considerable and increasing consumption of Copper is noticeable; and as long as a legitimate demand governs the present quotations, this branch of industry can be rated as prospering." The official telegram from London at the close of last week quoted Chili Bars, £82. 10/, and Best Selected, £90, with the remark that there are many buyers, and that the market is active. The manufactures of Copper have been steady at the following rates: New Copper Sheathing, 30c.; Bolts and Braziers, 31c.; Bronze and Yellow Metal Sheathing, 21c., and Bolts, 28c., net cash.

Tin.—There has been more doing in Straits and Malacca during the week, some 3000 slabs, spot and afloat, changing hands at 19½c. @ 19¾c., gold. The market continues strong as follows: Straits, 20c., gold; Malacca, 20c.; English Refined, 20c.; ditto Common, 19⅝c., and Banca, 24c., all gold, for large lots. The Dutch sale, a week ago, went at 53 guilders the 50 kilos, for Banca, on an average. London, on Straits, has been less steady, one telegram quoting £86. 10/, and another £85. 10/, and this, notwithstanding the again satisfactory progress of deliveries in September. The fact is that after the many disappointments it takes the metal trade some time ere they can accustom themselves to materially enhanced rates. Yet the general aspect of the metal markets is decidedly more encouraging than it was two months ago; that Europe should recede to the low rates of Tin then ruling is not likely. Singapore per cable, quotes $23·75 per picul. The September shipments were 800 tons to England, and 300 to New York. In *Tin Plates* a more hopeful feeling is also obtaining upon the announcement per cable that large transactions are going on therein in England. We have not as yet come under the full effect of this favorable turn, but it is less easy to buy now than was the case last week. Holders do not like to sell ahead large lines, even where there is a readiness to purchase. Meanwhile, business has been more exclusively of a jobbing nature. We quote large lots of ordinary brands, gold, per box, as follows: Charcoal Bright, $7·62½ @ $7·75; ditto Ternes, $7 12½ @ $7·25; Coke Tin, $6·50, and ditto Ternes, $6·25, all gold.

Lead.—Domestic has been unsettled somewhat by the forced sale of a new brand of Nevada Lead, "Richmond," to the extent of some 300 tons at 5¼c., gold. From this speculative purchase re-sales are making at 5·60c., gold. As this, in a measure, ends the matter for the present, other ordinary Domestic may yet be quoted 5⅝c. @ 5¾c., gold, nominally, nothing being done. Common Foreign we continue to quote nominally 7⅛c. @ 7¼c., gold. Soft Missouri is scare at 7·30c., currency; this scarcity is likely to continue for some time to come, there being a good demand for it out West. What Eastern manufacturers are going to do with this prospect before them, is not easy to determine as long as Europe remains high. They are hardly in a position to import from there at a difference of something like 1c., currency, against them, as compared with Missouri Soft Lead; eventually the latter may therefore rise still further. We have read a letter from Germany, dated Sept. 20, which says: "In spite of the almost total cessation of a demand for the United States, the available supplies in Europe have been absorbed without difficulty, and stocks have been everywhere reduced to a minimum." Bar and Pipe are quoted at 8⅝c., and Sheet at 9½c., less 10 per cent.

Spelter and Zinc.—Nothing of special interest has occurred in Domestic Spelter, which sells in moderate quantities at 7¼c., currency, 30 days. Foreign has been inactive, both spot and to arrive, no sales being reported, and we leave our nominal quotation of 7½c. @ 7⅝c., gold, unaltered. The German letter alluded to under Lead, remarks about Spelter: "Every occasional little lull in the demand is followed by a vigorous revival, thus sufficiently proving that the metal is in a very healthy condition." Sheet Zinc is quite strong at 9c., gold, in response to the European advance.

Antimony—Remains moderately active at 13½c. @ 14c., gold. It is firm at London, where it is in request for the Continent.

COAL.

We have no definite change to report in the condition of the Coal market since last week. There is little movement yet in the Iron trade, and until there is some activity among the Iron manufacturers, the Coal trade will be neither large nor active. Prices remain firm at the advance which we noted last week.

The quantity of Coal sent from the Schuylkill region during the past week was, by rail, 112,049 tons; by canal, 37,274 tons; total, 149,323 tons, against 131,430 tons for the corresponding period of last year. Increase, 17,893 tons. The total so far this year is 2,983,696 tons, against 3,318,683 tons for same period last year; decrease, 334,887 tons.

The quantity sent from all the regions for the week was: Anthracite, 568,155 tons; Bituminous, 91,912 tons; total, 660,067 tons, against 471,007 tons Anthracite, and 76,352 tons Bituminous for the corresponding period last year. Increase of Anthracite, 97,148 tons; increase of Bituminous, 15,560 tons. Total increase, 112,708 tons.

The quantity sent from all the regions so far this year foots up 14,048,636 tons Anthracite, and 2,708,967 tons Bituminous. Total, 16,757,603 tons, against 14,430,427 tons Anthracite, and 2,604,668 tons Bituminous; total, 17,035,095 tons for same period of last year. Decrease of Anthracite, 381,791 tons; increase of Bituminous, 104,299 tons.

The following are the circular prices fixed by the Coal companies which are represented by Frederick A. Potts, 110 Broadway, for delivery during the month of October:

SHIPPED FROM PORT JOHNSON, ELIZABETHPORT, HOBOKEN, RONDOUT, TRENTON AND PERTH AMBOY.

	Lump.	Steamer.	Broken.	Egg.	Stove.	Chestnut.	Ch'nut No. 2.
	$	$	$	$	$	$	$
L. & W. C. Co.'s, Wilkesbarre	5 05	5 15	5 25	5 65	6 10	4 95	4 00
L. & W. C. Co.'s, Old Co. Lehigh	5 55	....	5 55	5 65	6 10	5 10	4 00
L. & W. C. Co.'s, Plymouth Red Ash	....	....	5 35	5 75	6 25	5 10	4 00
L. & W. C. Co.'s, Honeybrook Lehigh	5 55	....	5 55	5 65	6 10	5 10	4 00
Fulton Lehigh	5 55	....	5 55	5 65	6 10	5 10	4 00
Scranton	5 05	5 15	5 25	5 65	6 10	4 95	4 00
Lackawanna	5 05	5 15	5 25	5 65	6 10	4 95	4 00

We quote as follows: Anthracite, $4·95 @ $6·10; Cumberland, $6·25 @ $6·75; West Virginia, $6·75 @ $8; James River Steam, $6·25; James River Carbonite, $9 @ $9·50; Kanawha House, $11·50; American Gas, $6·75 @ $7·25; American Cannel, $12 @ $14; Pennsylvania and Westmoreland, $6·75; Murphy Run, $6·50; Newburgh Orrel, $6·50; Sterling Ohio, $10; Ince Hall, $17 @ $18; Liverpool House Cannel, $17; Liverpool Gas, $10 @ $12; Newcastle Gas, $8; Scotch, $7·50 @ $9.

The Coal transported over the Cumberland Branch Railroad during the week ending Oct. 2, 1875, amounted to 6564 tons, as against 4904 tons shipped in the corresponding period of last year, showing an increase of 1660 tons. Over the Cumberland and Pennsylvania Railroad, for the same period, the shipments were 46,140 tons, against 43,420 tons shipped in 1874, an increase of 2720 tons. The aggregate amount of Cumberland Coal shipped by the various companies so far this year amounts to 1,761,790 tons.

OLD METALS, PAPER STOCK, &c.

Business in this market still continues unchanged from the dullness previously noted. The Rag and Paper Stock market is without any activity, and dealers are unable to dispose of any considerable quantity, no matter how great the concessions may be. The failure of the paper house of Janeway & Co., large buyers of Rags and Paper, has had considerable effect on the market. There are but few signs of improvement in the market for Old Metals. Prices, however, remain firm at our quotations. We quote the following as the current purchasing rates:

Old Metals.—Copper, 16c. @ 17c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 13c. @ 14c.; Lead, solid, 5½c.; Tea Lead, 4½c.; Zinc, 4¼c. @ 4½c.; Pewter, No. 1, 18c.; do., No. 2, 8c. @ 12c.; Spelter, 5c. @ 5½c., Wrought Iron, 1c.; Sheet do., ½c.; Cast, do., ¾c.; Machinery, do., ⅝c.

Rags, &c.—Canvas, Linen, 4¾c. @ 5¼c.; do. Cotton, No 1, 5¾c. @ 6¼c.; No. 2, 2¼c.; White, No. 1, 6¼c.; No. 2, 4c.; Colored, do., 2c. @ 2¼c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 5c. @ 5½c.; Gunny Bagging, 1¼c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4⅛ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 3c.

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending Oct. 5, 1875:

Hardware.

Boker Hermann & Co.
Mdse. pkgs., 22
Brown Wm.
Anvils, 2
Dodge A.
Casks, 5
Field A. & Co.
Cases, 3
Packages, 8
Chains, cks., 13
Fuller Bros.
Packages, 3
Grimaldi, Brown & Co.
Anvils, 2
Harris C. E.
Cases, 4
Harmar, Hayes & Co.
Packages, 5
Laughland & Co.
Wire, pkgs., 6
Cutlery, cs., 2
Lau & Garlichs.
Mdse. pkgs., 1
Moulson John,
Packages, 4
Moore's J. P. Sons.
Per. caps, cs., 14
Empty cartridge cs., cs., 10
Merchants' Dispatch Co.
Wadding, cs., 7
Per. caps, cs., 8
Meyer & Kaster,
Arms, cs., 4
Peters Bros.
Mdse. pkgs., 5
Pearce Geo.
Cases, 1
Peck & Snyder,
Guns, cs., 1
Remington E. & Sons,
Mdse. pkgs., 6
Spies, Kissam & Co.
Guns, cs., 2
Empty cartridge cs., cs., 5
Schoverling & Daly,
Mdse. pkgs., 4
Stern Bros.
Cases, 1
Van Wart & McCoy,
Cases, 5
Wiebusch & Hilger Mfg. Co.
Mdse. pkgs., 13
Casks and chains, 33
Ward A.
Casks, 2
Cutlery, cs., 4
Order.
Casks, 4
Files, cks., 5

Iron.

Brown Bros. & Co.
Wire rods, coils, 999
Coils, 300
Drexel, Morgan & Co.
Russian sheet, pkgs., 250
Eggers & Heinlein,
Scrap, tons, 17
Grimaldi, Brown & Co.
Bundles, 35
Bars, 31
Irwin R. & Co.
Pig, tons, 100
Lang W. Bailey & Co.
Bundles, 185
Bars, 272
Laughland & Co.
Hay bands, bdls., 361
Mitander Nils,
Bars, 237
Morrill Jos.
Scrap, tons, 443
Nash Henry & Co.
Pig, tons, 200
Naylor & Co.
Bars, 14,580
Rods, coils, 1230
Bundles, 92
Phelps, Dodge & Co.
Sheet, pkgs., 1000
Wilson & Asmus,
Scrap, pcs., 27
Wheeler R. S. & Co.
Pig, tons, 100
Order.
Bars, 10,898
Pig, tons, 100
Bundles, 4
Spiegel, lots, 1
Scrap, lots, 1

Steel.

Brown Wm.
Cases, 21
Bundles, 309
Frith Edward,
Cases, 10
Grimaldi, Brown & Co.
Cases, 9
Hogan John,
Bundles, 99
Cases, 9
Naylor & Co.
Cases, in bars, 45
Bundles, in bars, 15
Cast, bars, 10
Prosser Thos. & Sons,
Mdse. pkgs., 28
Roberts Henry,
Casks, 1
Warren J. M. & Co.
Cases, 20
Woodford W. O.
Cases, 88
Bundles, 77
Order.
Sheet, cs., 1
Cases, in bars, 6
Bundles, 256

Metals.

Bruce & Cook,
Terne plates, bxs., 160
Tin plates, bxs., 240
Byrne Joseph & Co.
Tin plates, bxs., 200
Dickerson, Van Dusen & Co.
Tin, ingots, 224
Tin, ingots, bbls., 6
Tin plates, bxs., 1005
Eggers & Heinlein,
Scrap bell metal, lbs., 690
Keppelmann A.
Lead, cks., 100
Morrill Jos.
Scrap copper & brass, lbs., 2200
Phelps, Dodge & Co.
Tin plates, bxs., 1000
Order.
Tin, slabs, 948
Tin plates, bxs., 10
Terne plates, bxs., 103
Tin plates, cs., 49

PHILADELPHIA.

PHILADELPHIA, Oct. 5, 1875.

The market is not quite so active as at our last report, although there is no material change in prices to report. From Pittsburgh there are reports that the market there is weaker, with small inquiry for Pig Metal, and this has had a tendency to depress trade here. Against this is the fact that a very healthy trade is doing in almost all other branches of business beside Iron, and that the farmers are receiving good prices for abundant crops, which must increase the demand for all manufactured goods, and with these for Irons of every grade. The very considerable transactions of last week in Pig Metal have also somewhat restricted trade for this week. In Manufactured Irons there is no improvement to note. Bars continue as at our last. Rails are in fair request, and we hear of considerable activity West. Old material continues in demand, Scrap being well maintained in price, and Old Rails taken freely at quotations. The bugbear which was made of the offer of the Reading Coal & Iron Company to the furnaces has been discounted, and the product of the few stacks which have gone into it, and which were mostly those previously connected with the company in some way, will not probably come upon the market for some time. The situation of the market appears to be that any improvement in demand would advance prices, as some grades of Pig Iron, notably Gray Forge, are really scarce, and it is doubtful if any stocks are accumulating of any kind, at present. We quote the following prices as current here, viz.:

PIG IRON.—No. 1 Foundry, $25·50 to $26; No. 2, $22 to $23; Gray Forge, $21 to $22, and scarce.

BARS—2·6c. to 2·7c. per lb.

RAILS—$47 to $50.

OLD RAILS—$26·50 to $27.

SCRAP.—$31 to $32.

We are quoted the following sales, viz.: 5000 tons Nos. 1 and 2 Foundry at quotations; 2500 tons Gray Forge and Mill Iron; 500 tons Old Rails at $26·75 to £27, here; 300 tons Scrap at $30 to $31. In Rails we note sales of some 2500 tons in lots for nearby deliveries. The Toledo & Columbus Railroad Co., of Ohio, has placed orders for 4000 tons, half Steel and half Iron, with Western mills, the Steel Rails being taken by the Cleveland Rolling Mill Co. and the Iron by the Columbus Rail Mill, but both at prices kept private.

Report of the Philadelphia Iron market, furnished for *The Iron Age* by JUSTICE COX, JR., & Co., Iron merchants, 333 Walnut street, Philadelphia, October 5th, 1875: Business is depressed, prices are lower than at any time since the panic of '73, and "things" generally are in a demoralized condition. It is the opinion of many that the bottom has been reached, when regarding prices, and any further decline will cause either the stoppage or the ruin of many engaged in the manufacture of Pig and finished Iron. Reports reach us from all parts of the country of failures resulting from the "cutting under" on prices. Those furnaces, foundries and mills that are economically managed are still, despite the present low prices, believed to be making some profit. Conversation with men largely engaged in producing Pig Iron assures us that the cost of raw material, ores, etc., and labor, has been reduced as much as possible, and that their only hope now of any profit is in obtaining full prices for their Foundry grades, the value of Forge or Mill grades having sunk below the cost to make them. The foundries, however, are not buying largely, having given up the habit of contracting heavily at this time of the year (to carry them through the winter), but are purchasing only as their needs require. The Pipe works are the most busy, completing old contracts made early in the season. The rolling mills are running generally on full time, but the question of pay for "puddling" is still agitated, and may result in the stoppage of work through a reduction of wages. Although business is at this time so much depressed and prices unremunerative, a better time will come, when the bottom has *actually* been reached. Then the railroads will be large purchasers of iron, as heretofore, boats will be made of Iron, and Iron will enter into the composition of almost every useful article. While prices are every day declining and unsteady, nobody will buy. When things become settled the demand will come and trade become prosperous. May we soon get there. We quote: *American Pig.*—No. 1 Foundry, $25 to $26; No. 2 do., $22 to $23; Gray Forge, $21 to $23, delivered here. Sales have recently been made of 1000 tons No. 1 Chickies at $26; 500 tons No. 1 Montgomery at $26, and quotations 500 tons St. Charles, No. 1 and 2, at $26 and $24; 1000 tons Gray Forge at $21, all here. *Bar Iron.*—2·6c., nominal. *Muck Bar.*—$46·50 to $43. *Old Rails.*—$26 to $28. *Scrap.*—Nominal at $30 for Wrought.

PITTSBURGH.

PITTSBURGH, Oct. 5, 1875.

PIG IRON.—There has been no improvement in trade during the past week; indeed, instead of improving, it appears to be growing worse. There was less done in September than there was in August, notwithstanding a decided improvement was expected, and the indications just now are that October will be no improvement on September. The mills, with but very few, if any, exceptions, are buying only when forced to, and then only to supply their immediate wants, as they have resolved, for the present, to carry no more stock than they can possibly help. But for the fact that stocks are very much reduced, and the production is down lower than it has been at any time yet, prices would doubtless have declined ere this; and notwithstanding holders generally are refusing to make any concessions, it is certain that no sale of any importance could be effected in the present condition of affairs, unless a tempting inducement was held out. $24, 4 mos., is still regarded as the ruling quotation, yet it is doubtful whether the mills could be tempted to enter the market at $23·50, or even $23, 4 mos., in consequence of the very unsatisfactory and depressed condition of trade for the products, present as well as prospective. Foundry Irons are also very dull, but prices are nominally unchanged; No. 1, $27 to $28, 4 mos.; No. 2, $25 to $26; White and Mottled, $21·50 to $22·50.

MANUFACTURED IRON.—The market for the ordinary sizes continue very dull and unsatisfactory; orders are not coming forward as freely as usual at this season of the year. Some of the mills report that the demand is not sufficient to absorb their production, single turn, and the outlook at the present writing renders a general suspension not improbable between now and the close of the year. It is intimated that an effort will be made to reduce the cost of labor, that is of skilled workmen, and if so, another lock-out is almost certain, but there is this difference—the mills, generally, are in a much better condition for a lock-out now than they were during the existence of the last one, and, beside, there is not much doubt but a suspension for a few months would, by curtailing the production, have a good effect upon general trade. Overproduction appears to be the great source of trouble, and while it exists there will be a sharp competition and ruinous prices.

NAILS.—The Nail trade is not turning out as brisk as it was expected it would. Some manufacturers report that orders have commenced to fall off, notwithstanding prices are down to a point that scarcely covers actual cost of manufacture However, the factories, from all that I can learn, are still in operation. Quotations may be fairly given at $3, 60 days, with a rebate of 10 cents on 100 keg lots, and 2 per cent. discount for cash.

SCRAP IRON.—The market for both Scrap Iron and Scrap Steel continues exceedingly dull. Instead of improving, it is getting worse, and prices are weak and lower. No. 1 Railroad Wrought Scrap cannot fairly be quoted above $1·20 to $1·25 per 100 lbs., four months, delivered free at mills.

CASTINGS.—Some of our large machine casting foundries have about all they can do. One or two are reported as having work enough booked to last them for a year or more, but these are exceptions to the general rule. The Stove trade continues good, and trade in Cast Pipes is reported comparatively light. Prices for Chilled Rolls and heavy Castings are unchanged.

THE SUPERIOR RAIL MILL.—It is rumored that the Superior Rail Mill, which has been standing idle going on two years, is about to be started up under the auspices of the Cambria Iron Co. It is to be hoped that the rumor may prove correct, as it will furnish employment for some 500 or 600 men if started up again.

THE EXPOSITION—Which opens here to the public on Thursday, the 8th inst., promises to be a grand success. The display, especially of manufactured goods, will be very extensive, and the attendance, both of visitors and spectators, promises to be very large. Pittsburgh should have made a move in this several years ago, but better late than never.

CLEVELAND.

Messrs. C. E. BINGHAM & CO., 25 West Main street, under date of Oct. 4, quote the Iron market as follows, 4 mos. time:

FOUNDRY IRON.

No. 1 Lake Superior Charcoal	$31·00—4 m.
No. 2 " "	30·00—4 m.
No. 1 Anthracite	28·00—4 m.
No. 2 "	26·00—4 m.
No. 1 Bituminous	27·50—4 m.
No. 2 "	26·00—4 m.
No. 1, Cherry Valley Am. Scotch	31·00—4 m.
B—1 " "	28·50—4 m.
No. 2, " "	27·50—4 m.
No. 1 Massillon	30·50—4 m.
B—1	28·00—4 m.
No. 2	25·50—4 m.

CAR WHEEL AND MALLEABLE IRON.

No. 1 Lake Superior Charcoal	$30·00—4 m.
No. 4 " "	32·00—4 m.
Nos. 5 & 6 " "	32·50—4 m.

BESSEMER IRON.

Nos. 1 and 2 Lake Superior Charcoal	$30·50—4 m.

FORGE IRON.

No. 1 Gray	$34·50—4 m.
White and Mottled	23·50—4 m.

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Oct. 5: This market has undergone no special changes since our last report. Trade continues ruling quiet and unsatisfactory for the season, and quotations are weak, but unchanged.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ⅜ to 1 thick.. } 1 to 4½ wide by 1⅛ to 2 thick }	2·6-10 to 2 7-10c. ₩ lb.
Round and square, ordinary sizes, from ¾ to 2 inclusive	2 6-10 to 2 7-10c. "
Hoop Iron, 1½ wide and upward	4½ to 4¾c. "
Band Iron, from 1¼ to 4 in. wide	3½ to 3¾c. "
Horse Shoe Iron ¾ to 1 wide by ¾ to ⅛ thick	4 to 4¼c. "
Norway Nail Rods	7 to 7¼c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	15½ to 16c. "
Machinery Steel	11 to 11½c. "
Cast Spring Steel	10 to 10½c. "
Homogeneous Steel Plate	10½c. "
Perkins' Horse Shoes, per keg of 100 lbs.	$5·12½
" Mule Shoes " "	6·12½

Common Horse Nails, from 14c. to 18c. per pound.

10	9	8	7	6
Putnam Horse Nails..23	24	25	26	28c. per lb.
10	9	8	7	6
Globe Horse Nails...23	24	25	26	28c. per lb.

R. R. Spikes.....5¼ by 9-16 at 3c to 3¼c. per lb.

Messrs. R. C. HOFFMAN & CO., Iron and commission merchants, Nos. 23 and 25 South Frederick street, report the Pig Iron market as follows, under date of Oct. 5: The Iron market continues dull, without any material change in prices. We quote:

Baltimore Charcoal	$32·00 @ 35·00
Virginia "	31·00 @ 34·00
Anthracite No. 1	25·00 @ 26·00
" No. 2	23·00 @ 24·00
" No. 3	22·00 @ 23·00
White and Mottled	19·00 @ 21·00

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of Oct. 5: No change to report in quotations:

Virginia cold blast Charcoal Pig Irons			$30·00 @ 35·00
" hot " " "			28·00 @ 32·00
Va. hot blast Coke Pig Iron,	No. 1 ex.		26·00 @ 27·00
" " " "	No. 2 ex.		25·00 @ 26·00
" " " "	No. 3 ex.		24·00 @ 25·00
Virginia Anthracite.	No. 1 ex		27·00 @ 28·00
" "	No. 2 ex		26·00 @ 27·00

BOSTON.

OCT. 2.—*Pig* rules very dull, with a slightly better tone to Forge than Foundry, this result being developed out of the larger purchases of this former stock. The reports from Pennsylvania of more furnaces blown in are understood here to mean those of Forge Iron workers. We quote nominally: No. 1, $29 to $30; No. 2, $24 to $27; and Gray Forge, $21 to $24. *Bar* is selling more closely to brand than has ever been known, and Refined Iron not guaranteed will fail to realize more than the ordinary quotations for Common. Good Refined Iron quotes from $58 to $60, with straight lots selling to good parties at $57·50. This is the bottom price, with no extras. There has been considerable of an effort by the brokers here to sell bills to our dealers, but the winning man droped in from the West on Monday and sold 1000 tons, delivered in Boston at $56·75, cash, 15 days, every bar warranted. *Steel* is selling in a fairly steady way for machinery, while sleigh builders are in, taking moderate quantities of Sleigh Steel. A little inquiry exists for Tool Steel, but prices fluctuate according to the popularity of brands, and sales are made almost even with the quotations at shipping points. We quote: American Tool, 14c. to 15c.; American Machinery, 9c. to 9½c.; Bessemer Tires, 7c. to 7½c.; Sweet's Excelsior Tire, 8½c. to 12c.; English Tool, 16c. to 18c., gold. *Copper* is selling in a trivial way, with prices quoting from 23¼c. to 23⅝c., firm. The disposition is just now more manifest for selling spot lots, the stronger or higher tone being on futures. In Manufactured there is a quiet business, with prices unchanged. For manufactures we quote: New Sheathing, 30c.; Bolts and Braziers, 31c.; Yellow Metal Bolts, 20c. to 29c. *Lead* is without interest in any particular, and prices hang in a flabby way, buyers being rather more favored than sellers. We quote Pig 6c. for Domestic, and 6¾c. to 6¾c. for Foreign; Sheet and Pipe Lead, 9½c., currency; Tin Lined Pipe, 16¼c.; Bar Lead, 6½c., less usual trade or 10 per cent. discount. *Antimony* is firm, with very little business, quoting from 13½c. to 13¾c. as to lots bought. *Spelter* is strong and dull at $7·55, 30 days, and $7·40, prompt cash, all currency. Silesian is having a trivial business at $7·30. *Tin* is somewhat buoyant, from the stronger position of holders abroad. There is no marked quickening to the demand, but the inspiration for advance seems to spring largely from the London combination changing their quotations. Prices here are firmer, but as yet no actual advance has been established. We quote: Straits, 18¾c. to 19c.; Banca, 23c.; Refined English, 18¾c. to 19c., gold. Plates are active; we quote Charcoal I. C., $9·50 to $10; Coke, $7·75 to $8; and Terne at $7·50 to $11, gold.—*Com. Bulletin.*

CINCINNATI.

Messrs. L. R. HULL & CO., under date of Oct. 4, write us as follows: PIG IRON.—The Pig Iron market of the week past shows some encouraging features, but aside from these it has been generally depressed. A fair quantity of all grades has been moving, but at figures which producers call ruinously low. Purchases are made for immediate consumption, and if prices were favorable, there would be little cause for complaint. At present writing there is no upward tendency in quotations, but we note an increased demand from all quarters

HOT BLAST CHARCOAL.

Hanging Rock No. 1	₩ ton.	$26·00 @ —4 mos.
" " No. 2		24·00 @ —4 mos.
" " Forge		22·00 @ 23·00—4 mos.
Southern Brands No. 1		24·00 @ 25·00—4 mos.
" Forge		21·00 @ 22·00—4 mos.
Virginia No. 1		25·00 @ —4 mos.
" No. 2		24·00 @ —4 mos.
" Forge		21·00 @ 22·00—4 mos.

HOT BLAST STONE COAL AND COKE.

Hanging Rock No. 1	₩ ton.	$34·00 @ 25·00—4 mos.
" " Forge		21·00 @ 22·00—4 mos.
Red Short No. 1		27·00 @ —4 mos.
" Forge		24·00 @ —4 mos.
Am. Scotch, No. 1		24·00 @ 25·00—4 mos.

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel	₩ tn.	$40·00 @ 50·00—4 mos.
Missouri " "		35·00 @ 40·00—4 mos.
Southern Br'ds " "		30·00 @ 40·00—4 mos.
Machinery and Forge		30·00 @ 35·00—4 mos
Blooms		— @ — —4 mos.

ST. LOUIS.

Messrs. SPOONER & COLLINS, Iron commission agents, 409 North Third street, St. Louis, under date of Sept. 30, report the Iron market as follows: We note a slight improvement in trade the past week, the demand being somewhat larger, though prices rule the same. We quote on four months' time:

Mo. Stone Coal, No. 1 F'dry	$27·00 @ 28·00	—4 mos.
" " No. 2 F'dry.	25·00 @ 26·00	—4 mos.
" " No. 1 Mill...	23·50 @ 24·00	—4 mos.
" Charcoal, No. 1 F'dry...	27·00 @ 28·00	—4 mos.
" " No. 2 F'dry...	25·00 @ 26·00	—4 mos.
" " No. 1 Mill...	23·50 @ 24·00	—4 mos.
Tenn. Charcoal No. 1 F'dry..	26·00 @ 27·00	—4 mos.
" " No. 2 F'dry	25·00 @ 26·00	—4 mos.
" " No. 1 Mill...	24·00 @ 25·00	—4 mos.
Georgia Coke No. 1 Mill	25·00 @	—4 mos.
" " No. 2 Mill.....	24·00 @	—4 mos.
H. R. Charcoal No. 1 F'dry.	27·00 @ 29·00	—4 mos.
H. R. " No. 2 F'dry..	25·00 @ 27·00	—4 mos.
H. R. " No. 1 Mill...	25·00 @ 26·00	—4 mos.
Massillon, A No. 1 Iron.....	35·00 @ 36·00	—4 mos.
" B, No. 1 Iron.....	32·00 @ 33·00	—4 mos.
" No. 2 iron.....	30·00 @ 31·00	—4 mos.
Cold Blast Car Wheel, Mo....	32·00 @ 35·00	—4 mos.
" " Tenn.	32·00 @ 35·00	—4 mos.
" " Ala..	32·00 @ 35·00	—4 mos.
" " Hang-		
ing Rock.....	50·00 @ 53·00	—4 mos.
No. 1 Wrought Scrap.....	1c.	per lb.
Heavy Cast "	9·10c.	"
Light Cast "	5·10c.	"

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

PARIS, Sept. 19, 1875.—*Metals.*—The European metal markets, if we except Tin, have experienced no changes of note during the week. The general demand is confined within narrow limits, and nothing leads us to expect any very favorable change in the immediate future. Although the available supplies of most metals may not be quite as ample as in times of general activity in the trade, they are yet sufficient to satisfy current requirements. Under these circumstances it is likely that the equilibrium between the supply and demand will be maintained till the advent of the winter. The only difficulty which might arise in the interim would be the resuscitation of the labor question. As we are, however, approaching the dullest season of the year, the men may prefer to leave matters as they are. The *Copper* markets early in the week kept steady, the immediate wants of consumers sufficing to lend support to the metal, but since then less firmness is observable, the requirements having been attended to, and the Chilian charters for the fore part of the current month, of 2500 tons, not being calculated to impart strength to ruling rates. The demand for India at London is also slack. Here the situation is one of comparative stagnation, so far as speculative inquiry is concerned, whereas consumption remains satisfactory and suffices to sustain reigning figures. We quote, deliverable at Havre, Chili Bars, 220 francs; Common do., 215; Ingots, 225; English Tough Cake, 222·50, and pure Corocoro Ore, 217·50. Nothing transpires at Havre in Chili Bars; general quotations there closely follow the London market. First brands Chili command 215; current do., 212·50, and Lota, 210. After a week of great steadiness Copper has again receded into a drooping attitude at Marseilles, the less desirable small ingots going at 215. *Tin.*—Throughout the week the European markets have been characterized by great firmness. The demand has fully come up to expectations, and extensive transactions have resulted therefrom at gradually hardening rates. The Dutch Trading Company's sale is now, however, drawing near, pending which there is an inclination to abstain from further important dealings. Prices are tolerably well sustained in our own midst. We quote: Banca, deliverable at Havre or Paris, 237·50 francs; Straits, 230; and English, at Havre or Rouen, 222·50. The same may be said of Marseilles, but the business done there has been insignificant. Quotations for Straits and Billiton, 210; English, 220 francs. *Lead* has again improved a little in most of the European markets, but the demand is now less urgent. Here the metal has been firmly sustained at the recent amelioration, and later in the autumn even higher prices are looked forward to. We indiscriminately quote all sorts 59 francs. Spanish, at Havre, commands 57 to 57·50 the 100 kilos. Despite the favorable London telegrams, the demand at Marseilles has been for consumption only. There are no export orders. The quotation there is 54 francs. *Spelter.*—High prices have again ruled during the week, and in various quarters the amounts sold have been considerable. Here the quotation remains 65 francs for Silesian and 64 for other good brands. At Havre the range for Silesian is 63 to 63·50, all the 100 kilos. No change at Marseilles. *Iron.*—We have nothing of special interest to advise. Business is restricted and rates obtained are low. The low figure at which Steel Rails have gone at the Belgian tenders have produced a depressing effect among us. Pig Iron, both in the Moselle district and at Luxembourg, sells at extremely low prices. Rolling mills have little work on hand, and that little of a rather unremunerative character. The only works which have proceeded of late in a manner tolerably satisfactory to makers have been the Steel manufactories, but the sudden break in Rails in Belgium may affect the value of Steel in France. It should, however, be remarked that Iron industry in general has suffered less in France for the past two years than anywhere else. This has been due to the prudent course pursued by makers, and to the extensive railroad building that has been going on in the republic. *Coal* has been moderately active and firm, and the outlook is reassuring.

BELGIUM.

(Revue Universelle).

BRUSSELS, September 19, 1875.—*Iron.*—Although all our establishments are busy, prices remain quite low. We are afraid that this depression will continue some time longer, for prices in England are lower than ours. If, therefore, we wish to go on selling Iron to the English, we shall be compelled to accept considerably lower rates than those now ruling among us. The news is now confirmed that various banking and commercial firms have bought jointly in a lump 25,000 tons Pig Iron in the neighboring Grand Duchy of Luxembourg. This article had declined to such a low figure there that a powerful inducement was held out for this speculative purchase; yet it may take some time ere a profit can be realized thereon. *Coal.*—The improvement alluded to in our last weekly review as having taken place, has made some further slight progress. There is an active demand for Coal for household purposes; buyers, however, still resist subscribing to the enhanced rates. Of all the Coal districts in Belgium, Liege is the least active one. This is owing to the languishing state of Iron industry there. Mons, on the other hand, is shipping off large quantities, both by water and rail. An entirely new form in which compressed peat is now being turned out at Norrkoping, in Sweden, is the tubular one; the tubes are of course short, and dry rapidly, and are very much liked as a fuel for steam engines.

GERMANY.

(Borsenhalle.)

HAMBURG, Sept. 18, 1875.—*Metals.*—Business during the week in the German metal markets has not been dull, but might have been more active considering the season and the notoriously light stocks held by consumers at large. *Copper* has been a little more lively, but it is not easy to sell large quantities. Our own excepted, the markets are firm. Berlin has been quite strong at 90 to 93 marks the 50 kilos. Stettin quotes 95 to 100 marks. Here the tendency has been slightly downward. The old stock on hand has not yet been disposed of. We quote: Dronthein, 94 marks; Minnesota, 110; and Quincy, 100 marks. The German markets have kept pace with the improvement that has developed in England and Holland in *Tin*. At Berlin the market is firm at 94·50 to 95 for Banca, and 91·50 to 92 for English, the 50 kilos. Here we are slower in following up the improvement elsewhere reported; we quote Banca nominally 95. *Lead.*—Cologne has further advanced, spot Lead being scarce: Soft Refined there 22·50 to 22·70 the 50 kilos. At Berlin the market is firm at 23·50 to 24. Spanish, at Stettin, is 26·25 to 27, and German, 23 to 25. A lot of 400 cwts. old Lead has sold here at 20·80. We quote: German, 23·75 to 24·50; English, 25·80; and Spanish, 25·10. The firmness and upward tendency in *Spelter* has not been interrupted; the raw material is scarce in Germany, and Sheet Zinc is in request, hence they are both rising. At Cologne, at the works, Spelter is quoted at 24·50 to 24·75. Good and best qualities Silesian Union sell at Berlin respectively at 24·50 and 25·50. Stettin is firm at 25 to 26. Here little transpires for the want of material, and we have to be written nominal.

HOLLAND.

(Koch & Vlierboom.)

ROTTERDAM, Sept. 21, 1875.—*Tin.*—The market is in a firm position, but nothing is done in view of the proximity of the sale. Banca, September delivery, last sale, 53 guilders; November delivery at 52; and Billiton, spot, 50.

RUSSIA.

(Journal de St. Petersbourg.)

ST. PETERSBURG, Sept. 12, 1875.—The telegraphic system of Russia now consists of four departments, the State lines, the railroad wires, the Anglo-Indian and the private companies' lines. On Jan. 1, 1873, the State lines extended over a distance of 53,448 versts, with 103,340 versts wires, and 649 stations. The increase in 1873 was 2196 versts in lines and 30 in stations. The railroads had 10,738 versts distance and 681 stations; the increase was 2235 versts and 112 stations. The Anglo-Indian line had on Jan. 1, 1874, 3407 versts distance and 53 stations, while private companies had but 324 versts and 20 stations. The aggregate was therefore 72,348 versts in operation, with 1556 stations. On Jan. 1, 1875, there had been added 127 post office telegraphic stations. Germany, England, Austria and France are the countries with which the greatest number of telegrams is exchanged. The increase in the receipts in 1873 over the preceding year was nearly 11 per cent. The central office employs 153 operators, while the stations count 5895.

EGYPT.

(Messager d'Alexandrie.)

ALEXANDRIA, Sept. 9, 1875.—The government of Ismael Pasha contemplates the building of a railroad which is to extend into the new province of Darfour, and which is to be a great commercial route. The same as is the case with the Cairo-Menieh line, will traverse the Valley of the Nile and follow the course of the river; it will be 240 miles in length, and will cost £1,100,000. An Englishman, Mr. Fowler, is the engineer, and the work of construction is to be taken in hand without delay. At Cartoun the line will bifurcate, one branch direct to Darfour, and the other proceeding to Gondckore. The difficulties which navigation on the upper Nile now encounters will thus be obviated.

EAST INDIES.

(Aitken, Spence & Co.)

COLOMBO (Ceylon), July 24, 1875.—*Plumbago.*—The market continues very inactive, and supplies of all kinds are exceedingly small. The Sir Humphrey Davy will soon be ready for sea. She will be succeeded by another vessel in the ensuing month. The market closes quiet, but steady. We quote the three brands severally 280/, 150/ and 90/ first cost, or 320/, 180/ and 120/ per ton free on board, without freight, which is 70/. Shipments to the United States thus far, 25,945 cwts., against 21,410 in 1874; to England, 53,960; to the Continent, 1448; to India, 21; and to Australia, 97; altogether, 81,471 cwts. *Exchange.*—1/10⅝ to 1/10¾.

(Sandilands, Buttery & Co.)

PENANG, Aug. 10, 1875.—*Tin.*—The market opened at $21·40, with an active demand for China, and advanced to $21·50. But with subsequent unfavorable advices from home, the price declined to $21·25 to $21·35. Later advices of a more encouraging nature have strengthened rates, and the last purchase was at $21·75. Stocks are small and in strong hands, and the market closes decidedly firm, with an upward tendency. The following are the fortnight's purchases: For England and the United States, 2210 piculs; for China, 1780; and India, 250; altogether, 4240. Estimated stock in bazaar, 2650 piculs.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

SHEFFIELD, ENG., Sept. 20, 1875.

THE STATE OF TRADE

remains in what must needs be termed a dull condition throughout, with the exception of some little increase in the firmness of the Scotch and North of England pig iron markets. The manufactured iron departments are still afflicted with an extreme quietude, and finished iron cannot be sold in any quantity. In some of the leading iron districts the foundries are doing a very encouraging amount of business, and it is to this, coupled with the fact that shipments are just now being pressed in order to anticipate the closing of the Baltic navigation, that the existing stiffness of pig iron is due. It is true that the firmness of the pig iron market has not yet assumed a form calculated to alarm consumers, nor does it appear likely to do so in the Cleveland district, from which the exports of this class are chiefly made. In Scotland several occult causes may or might operate with the effect of causing a further augmentation of prices, notwithstanding the large quantity of iron now in store. Special brands of Scotch pig certainly appear to have a run upon them at the present time, whereas general brands are not in very special request. It should also be borne in mind, in endeavoring to account for the renewed firmness in pig, that in almost every district many blast furnaces have been blown out, so that by this means the production has been more evenly adjusted with regard to the demand. This equipoise has naturally had its effect, but without the causes to which I have alluded above, no stiffening of quotations might have resulted. In several localities there are some serious disputes with the iron workers relative to the practical application of the recently awarded drop in wages. These disputes hamper the employers a good deal, but are, it would appear, likely to prove disastrous to the men themselves, the

IMPENDING DISRUPTION OF THE IRON WORKERS' UNION

being now spoken of as an expected event. It should be understood that up to the present time the whole of the iron workers in England have been bound, so far as the fluctuations in wages are concerned, by the action initiated in South Staffordshire. A board of arbitration there settled the rate of payment to the men in accordance with the selling price of bar iron, certain allowances being made for the different modes of working in vogue in the North of England. The latest and, I believe, last award of the board was that the men should be paid 9/, per ton for puddling, and that a reduction of five per cent. should be made from the wages of the millmen. The men resisted this decision and went out on strike, but, in numerous instances, they have since gone to work again on the understanding that an additional sixpence per ton shall be paid to the puddlers for "discrepancies." As soon as this award became known the masters in the Sheffield district and the North of England generally made the reduction in the rate of payments to their men without any notice. It is from this cause that the strikes at the Parkgate and the Atlas Works originated. The whole of the men in the North feel sore, and appear resolved to be bound no longer by the action of their Staffordshire coworkers.

This feeling is likely to result in an open rupture between the two districts. The Northern iron workers say that the Staffordshire men are, in a certain sense, behind the times, and that whereas there has been no strike of any moment in the North of England for nine years, Staffordshire has been fertile in such matters. Some negotiations have already been entered into on the matter, but I gather that the propositions emanating from Staffordshire are deemed to be wholly impracticable by those whom I may now term the "other side." One of these proposals, I learn, is to the effect that the funds in hand should be divided, which would probably yield something like five shillings a head all around, but the men of the North say that some of their lodges are worth many pounds per individual member—one lodge near Newcastle having a fund of £2000 for instance—and that the entertaining of the suggestion is therefore entirely out of the question. In case the rupture does take place, the iron workers of Sheffield, Derbyshire and South Yorkshire would both naturally and by sympathy ally themselves with the North of England section, to which indeed they properly belong, instead of Staffordshire as at present. A further meeting is being called for next Monday, September 27th, at Wednesbury, for the mature consideration of the matter. The issue will be looked forward to with much interest by the large number of men concerned.

EXPORTS OF RAILROAD IRON.

The details of the railroad iron exports for the eight months ending August 31st are as under—these figures having not reached me when I last wrote:

To	1874. Tons.	1875. Tons.
Russia	109,055	79,355
Sweden and Norway	56,795	34,941
Denmark	6,540	5,593
Germany	6,431	2,903
Holland	15,012	5,889
Belgium	12,655	448
France	1,875	97
Spain and Canaries	15,458	7,428
Italy	10,972	7,024
Turkey	10,047	688
Egypt	11,106	4,629
United States	78,531	17,591
Brazil	15,781	6,518
Peru	6,311	11,789
Chili	11,740	13,926
British North America	44,852	78,246
British India	31,081	21,201
Australia	55,252	54,274
Other Countries	76,702	39,356
Total	576,196	391,986

ANOTHER IRON TRADE STOPPAGE.

Telegrams to-day from Stockton-on-Tees announce that for some days past there has been a good deal of speculation as to the Richmond Iron Works at that place, belonging to Messrs. Jaques & Co. The works consist of 26 puddling furnaces and rolling mills, and have afforded employment to about 300 hands. Mr. Jaques was seen on Tuesday last at Middlesborough, and is said to have left the district next day. The works have since been idle, and when the men went to the pay office on Saturday they were told that the concern was insolvent, and that four sheriff's officers were in possession. The amount of the liabilities does not appear to have transpired.

PLYMOUTH AND ABERDARE COMPANIES.

At the adjourned meeting of the creditors of these companies, held last week, in London, Mr. Robinson (Ebbw Vale Company) presided, saying that the arrangements to be submitted to the meeting were the best that could be made under existing circumstances. These arrangements were not explained in detail, but were such as would enable the works to be carried on, and in all probability 20/ in the pound on the debts without interest. It was necessary that the working capital in cash should be available, and that certain arrangements should be entered into with the Marquis of Bute, the landlord. These arrangements had been made, and as it appeared to be the best thing that could be done under the circumstances the creditors present passed resolutions agreeing to voluntary liquidation. In the separate estate of Mr. Fothergill, it was resolved that liquidation by arrangement should be adopted, and that Mr. Fothergill should have his discharge granted. I may as well explain, perhaps, that the effect of these resolutions is that Mr. Fothergill is again a perfectly free man, impoverished it may be, but still free from his creditors. He is still a member of Parliament, and may now remain so, although it is a generally understood rule that a bankrupt member must resign. The debts on the old estate have been capitalized as shares in the new form of the undertaking as a limited company, of which Mr. Fothergill will be the managing director. As the coal properties of the concern are doing well, it is thought that 20/ in the pound will soon be realized with proper and prudent management.

SCOTCH PIG IRON TRADE.

The Scotch market was very steady during the whole of last week, so far as warrants were in question, whilst makers' brands went up, in some instances, several shillings per ton. Connal's stores, at the end of the week, contained 55,532 tons—an increase of 2994 tons during the seven days. There are 114 furnaces in blast and 34 out, beside nine which are being repaired and two building. Freights are unchanged on the basis of 5/ to New York, and ballast pig iron 50/ per ton, delivered alongside. At Gartsherrie, 13 out of 16 furnaces are blowing, and at Coltness the whole 12 are in blast. At Glengarnock, 7 out of 9, and Eglinton, 16 out of 21, are blowing. These furnaces each turn out from 150 to 160 tons of pig per week.

Writing from Glasgow on Friday evening, Sept. 17th, Messrs. James Watson & Co. said: "The market for Scotch pig iron has been very strong during the week, with business done in warrants from 64/9 to 67/, cash, and 67/3 one month open, closing quieter, buyers at 66/6, sellers 66/9. Owing to considerable purchases being made of makers' iron, prices have rapidly advanced. Shipments last week were 12,982 tons, against 11,497 tons in the corresponding week of 1874.

	No. 1.	No. 3.
G. M. B., at Glasgow	67/	65/6
Gartsherrie, "	73/6	66/
Coltness, "	85/6	67/6
Summerlee, "	68/6	65/6
Langloan, "	78/6	65/6
Carnbroe, "	68/6	65/6
Calder, at Port Dundas	75/	65/6
Glengarnock, at Ardrossan	71/	66/
Eglinton, "	66/6	65/
Dalmellington, "	66/6	65/6
Shotts, at Leith	78/6	67/
Kinneil at Bonness	66/6	61/6

Messrs. John E. Swan & Brother's prices current:

Glasgow Brands.	Furnaces B'wing, 114	Furnaces Out 34.	Furnaces Built, 157.	Prices. No. 1.	No. 3.	No. 4
Gartsherrie	13	3	16	77/6	66/	..
Coltness	12	0	12	..	68/	..
Summerlee	6	1	8	68/	65/	64/
Langloan	7	0	8	78/	66/	65/
Govan	4	0	5	67/	65/	65/
Calder	3	2	8	78/	66/	65/
Shotts { Bess'mer	2	0	2	80/	..	..
Shotts { Ordinary	3	1	4	78/	67/	..
Carnbroe	4	2	6	68/	65/	65/
Wishaw	2	0	3	..	..	..
Monkland	6	0	6	67/	65/	62/
Chapelhall	3	0	3	68/	..	..
Clyde	5	0	6	67/6	65/6	..
Quarter-Clyde	4	0	5	67/	65/	61/

* f. o. b. Glasgow, 1/ per ton, extra.

Glasgow Warrants, 3-5 No. 1; 2-5 No. 3, g. m. b., 66/9.

WEST COAST BRANDS—*f. o. b. Ardrossan.*

Glengarnock	7	2	9	70/6	65/6	65/6
Ardeer	4	1	5			
Eglinton	6	2	8			
Lugar	4	0	4	66/	65/	66/
Muirkirk	3	0	3			
Portland	3	3	6			
Dalmellington	6	2	8	67/	66/	61/

(Brand'd / Eglint'n)

EAST COAST BRANDS—*f. o. b. in the Forth.*

Kinnell	3	1	4	66/	61/	60/
Almond	2	1	3	66/	61/	60/
Carron { Selct'd	3	3	6	67/6	..	..
Carron { Ordn'y				65/	..	..
Lochgelly	0	4	4	..	..	..
Lumphinnans	0	2	2	..	..	..
Bridgeness	0	2	2	..	..	..

TRADES OF SHEFFIELD.

There is no change in particular to notice in connection with the actual present condition of affairs in the iron trade, except such as will be found referred to in the subsequent part of this communication. Pig iron remains fairly well sustained in value, but sales are not very large, although there is still a good inquiry for reliable foundry pig iron. Now that the coal owners have abandoned their attempt to effect a reduction in the wages of their men it is highly improbable that any drop in the price of fuel will be declared, so that no relief for the iron masters is to be looked for from that source. One of the leading Bessemer steel manufacturing establishments here has, I hear, secured a fairly good rail order, which is being worked off as expeditiously as possible. The steel rail trade generally, however, remains in a very dull state. At one large establishment nothing has been done at the Bessemer pits for some weeks. The current quotations for hematite pig iron are as under: Maryport hematite, Nos. 3 and 4, mottled and white, 77/6; Bessemer, No. 1, 80/; No. 2, 77/6, and No. 3, 77/6 per ton, less 2½ per cent. for prompt cash; Millom Bessemer, No. 1, 80/; No. 2, 77/6; No. 3, 75/; ordinary, No. 3, 75/; No. 4, 74/; No. 5, 75/; mottled, 80/, and white, 75/, on the ordinary four months' terms, or with 2½ per cent. off for cash. Common merchant bars are being done at the local works at about £7. 17/6 to £8, mainly on account of Liverpool shipping orders or Manchester houses.

The steel trade is tolerably well engaged, taking it as a whole, but in no single instance am I able to hear of there being any pressure. A few orders for best cast steel, at £48 to £50 per ton, and for spring steel at £18. 10/ to £19, are reported to have been placed during the week.

Mr. Samuel Osborne, of the Clyde Steel and Iron Works, Sheffield, has recently taken into partnership several gentlemen well known in the trade. The final instalment of the dividend, under Mr. Osborne's composition, due in January, 1876, will be paid on the 1st of October next.

A petition has been filed in the Sheffield Bankruptcy Court by Mr. George Edward Swift, steel manufacturer, Blonk street, Sheffield, whose liabilities amount to about £6000.

A general meeting of the creditors of the Phœnix Bessemer Steel Company, limited, Sheffield, was held on Tuesday afternoon, under the presidency of Mr. Josiah T. Smith, of the Barrow Hematite Company. Several reports were read detailing the negotiations between the creditors' and the shareholders' committees, and it was afterward moved that an offer of 10/ in the pound be accepted. An amendment was, however, put, resulting in a majority in number voting against the acceptance of the offer, but a majority in value for it. Another meeting will have to be held, the committee meantime carrying on the works.

The iron workers, not only of the district, but of the country at large, appear to be in a state of great dissatisfaction at the present time. On Saturday last an important council meeting, or rather conference, took place at Sheffield, most of the principal iron trade localities being represented by delegates. Mr. John Kane, secretary of the Amalgamated Association of Iron Workers, was also present. The proceedings were conducted in private, and the resolutions passed, if any, did not become known. I believe, however, that the main subjects of discussion were the action to be taken in consequence of the dissolution of the Staffordshire Conciliation Board, and the dissatisfaction which prevails among the ranks of the men, owing to the recently awarded drop in wages of 5 per cent.

As an outcome of this dissatisfaction, to which I have just alluded, the puddlers at the Atlas Works, John Brown & Co., limited, Sheffield, have struck, and have, consequently, caused the plate mills to be laid off. At some other establishments the iron workers are dissatisfied, as men always will be with falling wages, but I do not apprehend any serious disputes.

Many of the works, as well as collieries, have done very little this week, there having been a "big" handicap on Saturday and Monday last, with Doncaster races following. Several large places were altogether closed yesterday, the men having gone off *en masse* to the St. Ledger.

In the file and general saw trade there is no great amount of work doing, but in large circular saws a very fair number of transactions are taking place. Edge tools are selling well for Australia, the Cape of Good Hope, New Zealand, Japan and India, but in some kinds of tools we are being hard pushed in distant markets by goods of American make. The cutlery trades are not busy, as a whole, but most of the departments have some work on hand, and in a few there is pressure. Special goods, such as butchers' and shoemakers' knives, are selling very freely, houses on your side being still very good customers.

NORTH STAFFORDSHIRE AND LIVERPOOL.

The circular of Messrs. Mackay & Gallagher reports as follows on the iron trades of these localities: "Since our last issue the demand for Staffordshire iron of all kinds is more active, and the general tone of the market decidedly better. *Bars.*—A steady business has been done at well sustained prices, and most works are, and have been lately, fairly full of orders. *Hoops.*—A good active trade has been doing in these, and large orders have been placed for baling hoops at good prices, although there has been considerable underselling among smaller makers of ordinary shipping specifications. Sheets have been in fair demand, both for home work and export. *Nail Rods.*—Until the last week or two these have been in small request, stocks in the East being exceptionally heavy. Speculative parcels in considerable quantities shipped to China and Japan early in the year blocked up the markets for the time; these, however, have been partly worked off, and we may now look for a more active business. *Wire.*—Notwithstanding the continued depression in this article, and the still overstocked state of the colonial markets, there has been some little business done, but until the heavy stocks in the colonies have been allowed to run off we do not anticipate anything like briskness in the wire trade."

BIRMINGHAM AND STAFFORDSHIRE.

In referring to Australian advices by the last mail and the subject of hardwares, the Birmingham *Post* says: "It appears that the Americans are getting an increased hold on the Australian markets, and are considerably extending the range of their imports there. Formerly these were confined chiefly to edge tools, spades, shovels, picks, and such implements. Now, however, they include extensive consignments of general ironmongery, for which there appears to be a ready market. One correspondent of a leading local firm trading largely with Melbourne, writes as follows: 'You will notice our indent runs more on American ironmongery than formerly. Their goods are far superior to English made, and latterly they have been much cheaper. There is no comparison in the profits they pay us, and they give universal satisfaction. Small wares, locks, tools, &c.—indeed, all sorts of American made goods—are now being sold in this market, and when once used, seen or sold, the user or buyer will never again look at English made articles of the same class.' This matter, our informants observe, is a most serious one, and demands careful attention on the part of our manufacturers. They testify, from their own experience, that orders to the extent of many thousands of pounds are being regularly sent to America, owing mainly to the quality of the goods, they being so far in advance of those of English make."

The iron trade of the district does not change much. The sheet makers are pretty well engaged, and there is a fairly good inquiry for good marked bars for exportation. The official list price for marked bars is £10, but there is a good deal of underselling—to the extent of fully 10/ per ton. Common bars are £7. 15/ to £8; common single sheets, £10. 15/ to £11; and plates, £10. 10/ to £11. Doors chains are reduced in price by an additional 2½ per cent. discount, owing to the increased competition. The Vielle-Montague Company's sheet zinc and nails are reduced to the extent of £2 per ton. Tin plates are much easier. Messrs. E. P. Baldwin & Co. quote their I. C. best charcoal W. B. and E. P. at 33/ per box; Wilden, 31/; Arley Crown, 28/; Stourcoke, 26/; Unicorn, 30/; and terne plates 3/ per box less than perfect tin plates of the same sizes. A rise may be expected in vises (or "vices," as some people dub them), as the Dudley men in this trade have determined to give notice to their employers for an advance of 2/ per cwt.

SOUTH WALES.

There is not a great deal doing in the Welsh iron trade, but there is a clear amendment as compared with a few months back. Last week 1970 tons of iron went from Cardiff to Gothenburg, 150 tons to Dort and 220 tons to Gefle. From Newport 1836 tons were sent. Dowlais is executing an order for steel rails—great care, it is said, being taken to insure absolute excellence in all respects, whether as to rails or merchant iron. At Nantyglo repairs are in hand prior to restarting the puddling mills. The coal trade of the principality is still very good, the total exports during August from Cardiff, Swansea and Newport having been over 400,000 tons. The wages question is yet unsettled.

THE METAL MARKETS

opened steadily and firm last Monday, but grew duller as the week progressed. On Monday 125 tons g. o. b. Chili Copper sold at £82; 25 tons named brands at £82. 5/; 10 tons Straits Tin at £82, spot; and 15 tons Australian, £80. 10/ to £81. On Tuesday 50 tons Chili bars, £82. Lead firm at £23. 5/. On Wednesday, quiet. Thursday 25 tons Chili bars sold at £81. 10/, and 25 tons, three months' prompt, at same figures. Tin was in demand, 100 tons Straits and Australian being sold, former £81. 10/ to £82, and latter, £83. 5 to £83. 10/. On Friday very little was done at purely nominal prices.

Messrs. Von Dadelszen & North report thus: "*Copper* has been steady, but little doing. Chili bars sold at £82 for g. o. b., and £82. 5/ to £82. 10/ for named brands, but close at £81. 10/ for g. o. b. Ore and regulus 17/ per unit. Charters for first fourteen days September, 2500 tons. Wallaroo, £93; Burra, £89. 10/; English tough, £90; manufactured, £94 to £95. *Tin* has been in good demand, and advanced slightly. The last sales of Straits have been at £83. 10/, both on the spot and to arrive, and for forward delivery. Australian has been sold at £81. 10/ to £82. 10/; to arrive, £79. 10/ to £80; Banca, 52½ fl.; Billiton, 50 fl.; English common ingot, £90. *Tin plates* quiet, at late rates. *Lead* firm, £22. 5/. *Spelter* rather dearer; £25 the nearest price. *Quicksilver* in demand, but at present stopped by importer refusing to name price for export. Small lots for home consumption sold by him at £12; from second hand, £12. 12/ to £13. 15/ paid."

The *Mining Journal* remarks: "*Copper.*—The market during the early part of the week maintained the firmness which has characterized it throughout the month. There has not been very much doing, but the immediate requirements of consumers were sufficiently great to afford that support which was necessary for the maintenance of prices; but now it would appear that these demands are for the present satisfied; and as inquiries from other source do not spring up, the tendency at the moment is toward a weak market, and this will be probably confirmed by the announcement made yesterday of charters from the West Coast for the first half of September of 2500 tons, consisting of 1300 tons bars and ingots and 900 tons ore and regulus for England, 100 tons fine copper for the Continent, and 200 tons fine copper for America. Chili bars are quoted g. o. b. £81. 10/ with three months' prompt, and same price for cash; Wallaroo, £92. 10 to £93; Burra, £89; English tough, £88 to £89; best select, £90; India sheets, 4 by 4, £94; strong sheets, £95; yellow metal, 7¾ to 8¼. The Indian demand for manufactured copper is very dull, also yellow metal. *Lead.*—The market continues very firm, without alteration as to price. Good soft English pig is quoted at £23 to £23. 5/; soft Spanish, without silver, £22. 12/6 to £22. 15/. *Spelter.*—Ordinary Silesian stands at £24. 15/ to £25. 5/; W. H., £25. 15/; English hard is quoted £18. 5/ to £18. 10/. *Quicksilver* is nominally quoted at from £12. 12/ to £13, but the market is unsettled. *Tin.*—Throughout the week the market has been firm, and good demand having sprung up, considerable business has been done, at advancing prices. Straits is now quoted £83. 10/; Australian, £82. *Tin Plates.*—A considerable business has been done during the week, but at prices which leave but small profit, if any, to manufacturers."

Messrs. Berger, Spence & Co.'s circular today says: "*Copper*, which at the commencement of the month held its own exceedingly well, now shows marked signs of drooping, rates being already slightly lower. *Lead* continues in good request, and very firm. *Tin* shows a decided tendency to higher rates, there being noticeable an advance of 15/ to 20/ per ton for Straits, while British remains very firm at 90/ per cwt. *Spelter* continues very steady."

Messrs. Warner, Walduck & Co.'s prices current: "Railway chairs and bowl sleepers, £4; cast iron pipes and general castings, £6 at works; 'champion' bars, £10; hoops, £11; sheets, £12. 10/; charcoal bars, £21; homogeneous sheets, £32, in London; bolts and nuts, £17. 10/; spikes, £10; rivets, £12. 15/, in London; solid drawn steel tubes from 1/ per foot. *Tin Plates.*—'Herdy' charcoal, extra fine quality, 36/6 per box; 'Gower' charcoal, 33/6 per box; 'Rhos' coke, 26/6 per box. Tinned sheets, 42/ per cwt.; black sheets, 20/ per cwt.; rolled sheet brass, 9d. per lb.; brass tubes 11d. per lb.; copper tubes, 12d. per lb.; brass wire, 9¼d. per lb.; copper wire, 12d."

Messrs. Harrington, Horan & Co.'s fortnightly Liverpool circular is as under: "*Copper.*—The steady trade demand for Chili bars noticed in our last continued for the first fourteen days of this month with but little fluctuation in

values, and during that period 2100 tons changed hands at from £81. 10/ to £83 per ton, according to prompt and brand; consumers, however, have apparently satisfied their requirements for the present, and to-day we have to report a lethargic market, and prices consequently show a drooping tendency. There have been no sales of Chili ore or regulus during the fortnight, and in the present state of the market it is doubtful if prices last paid are now practicable. At the Swansea sales yesterday 1174 tons ore, average produce 18¼ per cent., realized 16/5¾ per unit. Cape copper ore sold at 16/7 per unit. Quotations are: Chili bars, £82 to £83; ingots, £89; ore and regulus, 16/6 to 17/; Coro coro Barilla, 18/3. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at: Regulus, 979 tons; bars, 12,704 tons; ingots, 330 tons; representing about 13,475 tons fine copper, against 13,459 tons 31st ultimo. Stock of Chili copper in Havre, 1445 tons fine; stock of Chili copper afloat and chartered for to-date, 13,442 tons fine; stock of foreign copper in London, 7251 tons fine."

Latest Liverpool prices are:

Iron: f. o. b. in Liverpool, per ton.

	£	s.	d.		£	s.	d.
Merchant bar	7	17	6	@	8	5	0
Merchant bar, in Wales	7	7	6	@	7	15	0
Staffordshire	8	10	0	@	11	15	0
Hoop	9	15	0	@	10	15	0
Sheet	11	5	0	@	11	15	0
Nail rod	8	15	0	@	9	5	0
Bar, best crown	8	10	0	@	8	15	0
Boiler plates	11	5	0	@	12	0	0

Tin Plates: f. o. b. in Liverpool, per box.

	£	s.	d.		£	s.	d.
Charcoal, I. C.	1	8	0	@	1	10	0
Coke, I. C.	1	2	0	@	1	4	6

Copper: Delivered in Liverpool, per ton.

	£	s.	d.		£	s.	d.
Bolt and Sheathing	93	0	0	@	94	0	0
Tile	88	0	0	@	90	0	0
Tough cake	87	0	0	@	89	0	0
Best selected	90	0	0	@	91	0	0

London Metal Market.

(From The Mining Journal.)

	£.	s.	d.	£.	s.	d.
Copper—₩ ton.						
Best Selected	89	0	0	90	0	0
Tough Cake & Tile	88	0	0	90		
Sheathing and Sheets	94	0	0	95		
Bolts	92	10	0	93	0	0
Bottoms	93	0	0	0	0	0
Old	80	0	0	0	0	0
Australian, Wallaroo	90	0	0	91	10	0
" other brands	88	0	0	89	—	
Chil bars, g. o b	84	0	0	85	0	0
Wire	₩ lb. 0	0	11¾		—	
Tubes	" 0	1	0¾		—	
Brass—₩ lb.						
Sheets	0	0	9	0	0	10
Wire	0	0	9¾	0	0	0
Tubes	0	0	9¾	0	0	11¾
Yellow Metal Sheathing	0	0	7¾	0	0	8
Sheets	0	0	7¾	0	0	0
Spelter—₩ ton.						
Foreign on the spot	23	15	0	24	0	
" to arrive	23	15	0			
Zinc—₩ ton.						
In sheets	30	0	0	31	0	
Quicksilver—₩ bottle.	9	5	0			
Tin—₩ ton.						
English Blocks	87	0	0	88	0	0
Ditto Bars (in bris.)	88	0	0	89	0	0
Ditto Refined	89	0	0	90	0	0
Banca	83	0	0	84	—	0
Straits	82	0	0	23	—	0
Australian	80	0	0	81	0	0
Tin Plates—† ₩ box.						
IC Charcoal, 1 qual.	1	10	0	1	12	0
IX " 1 qual.	1	0	16	1	18	0
IC " 2 qual.	1	8	0	1	9	0
IX " 2 qual.	1	14	0	1	15	0
IC Coke	1	3	0	1	4	0
IX "	1	0	0	1	13	0
Canada Plates, ₩ ton.	15	0	0	15	10	0
" at works	14	10	0	15	0	0
Iron—₩ ton.						
Bars Welsh, in London	7	15	0	8	—	0
" to arrive	7	15	0	7	17	6
Nail Rods	8	5	0	9	10	0
Nail Rods, Staff'd in L'ndon	8	15	0	9	10	0
Bars	9	0	0	9	5	0
Hoops	10	5	0	10	10	0
Bars at Works	8	5	0	9	5	0
Hoops ditto	9	5	0	11	0	0
Sheets, single, and plates	11	15	0	12	0	0
Pig, No. 1, in Wales	5	0	0	6	10	0
Refined metal ditto	7	0	0	8	0	0
Bars, common ditto	7	5	0	7	10	0
Do, merchant, Tyne or Tees	7	15	0	8	0	0
Ditto, Railway, in Wales	6	10	0	7	0	0
Ditto, Swedish, in London	15	0	0	15	10	0
To arrive	15	0	0	—	0	0
Pig, No. 1, in Clyde	3	0	0	3	5	0
Ditto, f.o.b., Tyne or Tees	2	15	0	3	0	0
Ditto, Nos. 3, 4, f.o.b.	2	13	0	2	15	0
Railway Chairs	4	0	0	4	10	0
" Spikes	12	0	0	13	0	0
Indian Ch'coal Pigs in L'don		0	0		0	0
Steel—₩ ton.						
Swedish, in kegs (rolled)		—			—	
Ditto (hammered)	19	5	0	0	0	0
Ditto, in faggots	20	0	0			
English, spring	18	0	0	22	0	0
Lead—₩ ton						
English Pig, common	23	0	0	—	0	0
Ditto, LB	23	0	0			nom.
Ditto, WF	23	0	0	23	10	
Ditto, Sheet	21	0	0		0	0
Ditto, Red Lead	24	0	0	25	0	0
Ditto, White	30	0	0	32	0	0
Ditto, Patent Shot	26	0	0		—	
Spanish	22	5	0	0		0

" At the works, 1s. to 1s. 6d. per ton less. Terne plates 2s. per box below tin plates of similar brands.
† Add 6s. for each X.

HERCULES IRON CUTTER.

No. 1, weight	16 lbs.,	cuts	¾x2	inch, or	¼	inch round or square	.....Price	$25·00
No. 2,	"	165	"	⅝x3	"	¾	"	"	50·00
No. 3,	"	350	"	¾x4	"	1	"	"	75·00

This is by far the most powerful Iron Cutter in use which can be worked by hand, having three times the capacity of any other machine which sells at the same price. The No. 3 machine occupies a space of 12x30 inches; when in use additional space must be had for the lever to work in. We send two sets of knives with each machine—one for square and flat, the other for round iron and steel. By using the knives adapted to it, round iron is cut without being flattened. One man can cut the largest size iron named above, but two would be required for steady work. It does not take a minute to change the knives or to shift the machine from large to small sizes.

AUGUSTA, GA., March 3, 1875.

MILLERS FALLS CO.—Enclosed find draft for amount of invoice, January 7. We would have sent the amount before, but did not have an opportunity of trying the Iron Cutter until a few days ago. It is one of the best machines we ever saw. Yours, truly, MOORE & Co.

Office of the ATHENS FOUNDRY AND MACHINE WORKS,
ATHENS, GA., February 18, 1875.

H. L. PRATT, President.—Dear Sir: Enclosed find draft made payable to your order by Messrs. Childs, Nickerson & Co., in payment for Iron Cutter. We have put our Cutter to good service, and find it cuts readily 1⅛ round, and 3½ x ⅝ square iron. C., N. & Co. are pleased with theirs, say it will save many a blow and cold chisel in their iron house.

Truly, yours, R. NICKERSON, Agent.

We make a satisfactory discount to dealers, and warrant the cutters to do all which we claim for them. Send for prices.

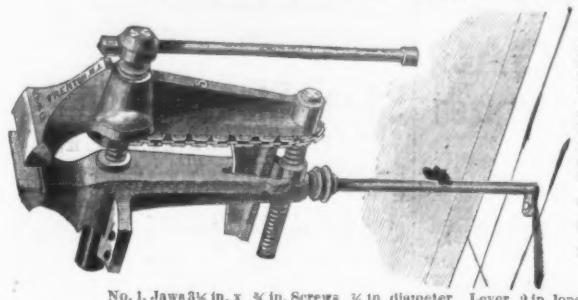
Millers Falls Company,

No. 78 Beekman Street, New York,

Sole Proprietors and Manufacture, of the

Barber Self-Fitting Bit Braces, Millers Falls Vises,
Improved Angular and Ratchet Drilling Machines,
TUBE SCRAPERS, FAMILY TOOL CHESTS,
Patent Adjustable Tool Holders, Mitre Boxes, Ratchet Braces, Breast Drills, etc.

The New Double Screw Parallel "Leg" Vise.



We are now ready to furnish, as the result of more than thirty years' experience, our latest style of Vise—the best yet made. It is **Stronger** than any other, whether of Foreign or of American make; always parallel and holding with a tighter "grip." The jaws are of convenient shape for the workman to get near his work equally well for filing or chipping, instead of the heavy, clumsily formed jaws of the cast iron Single Screw Vises of the common "parallel" type, and which, depending upon slide alone for preserving parallelism, can never be screwed up very hard without "jamming" on the slides or breaking.

Our New Vise combines all the advantages of the "Peter Wright" Leg Vise, of strength and lightness, fastening to the floor and bench, and at the same time greatly superior to it; is always perfectly parallel at all points of opening, and never gets out of line. Embodying the same general principle as the well known Chain Vise, so long made by us, we have by new, scientific proportioning of all the parts, and with our recently improved metals for their manufacture, obtained so perfect a tool, that we now *warrant* these Vises for *three years* from date of manufacture stamped upon each.

The Jaws are of best Tool Cast Steel, welded on, file cut and properly hardened. The screws are forged of the best refined iron, and work in *solid cut thread* boxes.

The lower screw maintains the parallel position of the two jaws, by having exact motion with the upper working screw through the connecting chain which regulates it.

The chain is very accurately made of steeled links and rivets, and having no strain of the work upon it, is therefore as durable as all the other parts.

Prices with Special Discounts to the Trade.

No. 1, Jaws	3¼ in. x	¾ in.	Screws	⅜ in.	diameter.	Lever	9 in.	long,	Opens 4¼ in.....$8 00
" 2, "	4½ in. x 1	in.	"	1⅜ in.	"	"	13 in.	"	" 5½ in.....12 00
" 3, "	5⅝ in. x 1¾	in.	"	1⅝ in.	"	"	16 in.	"	" 6½ in.....17 00
" 4, "	6¾ in. x 1¾	in.	"	1¾ in.	"	"	19 in.	"	" 7½ in.....22 00
" 5, "	7 in. x 1⅝	in.	"	1⅝ in.	"	"	24 in.	"	" 9 in.....30 00
" 6, "	8 in. x 1½	in.	"	1⅝ in.	"	"	26 in.	"	" 10 in.....34 00

All sizes of these Vises furnished with Swivel Attachment, at an additional cost of $1 to $3. Sold at the General Agencies.

THESE GOODS ARE SOLD BY THE GENERAL AGENTS (with special discounts to the trade).

New York.—Messrs. J. CLARK WILSON & CO.—RUSSELL & ERWIN MANUFACTURING COMPANY.—Messrs. HORACE DURRIE & CO. Boston.—Messrs. GEORGE H. GRAY & DANFORTH. Philadelphia.—Messrs. JAMES C. HAND & CO. Baltimore.—Mr. W. H. COLE.

FISHER & NORRIS, Trenton, N. J.

4000 U. S. IRON COTS

For Sale!

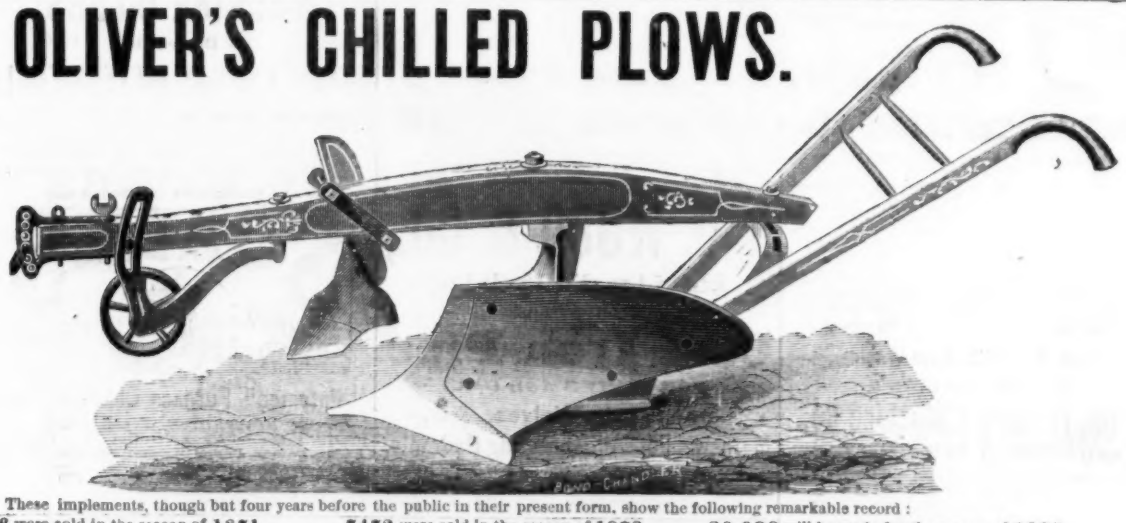
CAN BE BOUGHT CHEAPER

than any other cot in the market.

Light, Strong, Clean and Compact; occupying but 6 ft. by 1 1-2 in. when closed. They are specially adapted to the use of Hotels, &c., having transient lodgers.

WM. GARDNER'S SONS, 575 Grand St., N. Y.

OLIVER'S CHILLED PLOWS.



These implements, though but four years before the public in their present form, show the following remarkable record:

1506 were sold in the season of 1871. 7472 were sold in the season of 1873. 30,000 will be made for the season of 1875.
3049 " " " 1872. 14,976 " " " 1874.

For full descriptive circulars, address,

SOUTH BEND IRON WORKS, South Bend, Ind.

Ecton Mills Genuine London TURKEY EMERY.

TRADE MARK.

ABBOTT & HOWARD, Agents for the United States.

81 John Street, New York. 35 Oliver Street, Boston.

Every Person their Own Tinsmith.

THE GEM SOLDERING CASKETS

Contain

Self-Heating Soldering Copper, Scraper, 1-4 lb. of Solder, and Bottle of Soldering Salts.

Also on each lid directions how to use. The iron can be heated in the stove if necessary.

Sample caskets sent by mail postpaid for $1 00.

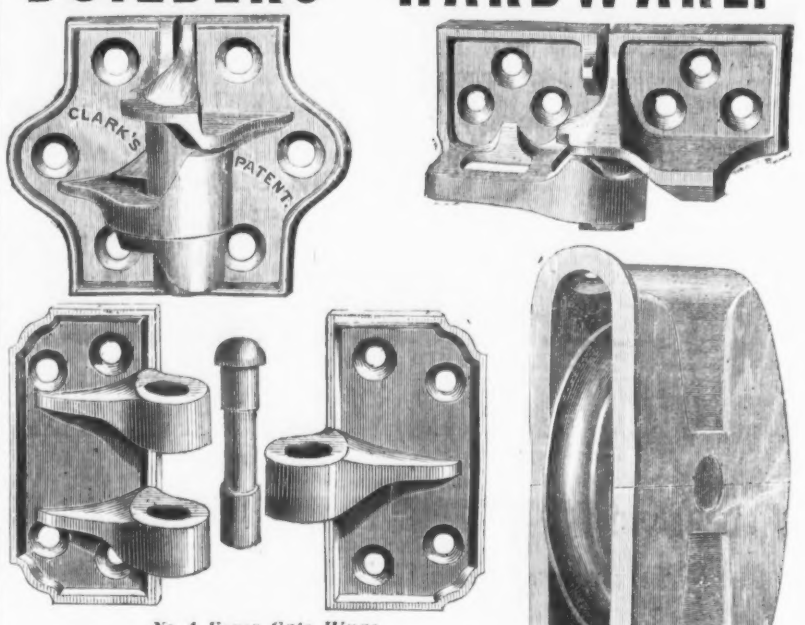
Send for descriptive price list.

GEM SOLDERING IRON CO.,
127 North 9th Street, PHILADELPHIA.

CLARK & CO.,

MANUFACTURERS OF

BUILDERS' HARDWARE.

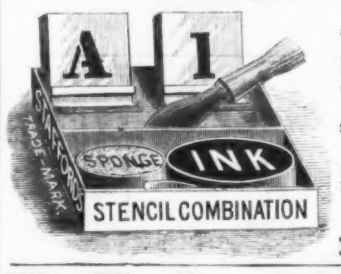


No. 1 Upper Gate Hinge.

Send for Illustrated Catalogue and Price List.

BUFFALO, N. Y.

STAFFORD MANUFACTURING CO.'S Stencil Combinations.



Containing: Stencil Alphabet, Figures, Can Stencil Ink and Brush.

For marking boxes, barrels, bags, and packages for shipment. Printing all manner of showcards, notices, signs, numbers, prices, &c., and other purposes too numerous to mention. Instructive and amusing for boys.

WHOLESALE PRICES.

Size.		Size.	
½ in., per dozen.....	$6·00	1½ in., per dozen.....	$10·00
¾ " "	6·50	2 " "	12·00
1 " "	7·00	2½ " "	18·00
1¼ " "	9·00	1½ " with lower case..	15·00

An Illustration of sizes sent on application.

For sale by Hardware Dealers and Stationers.

No. 66 Fulton Street, New York.

MACK & CO.

Successors to

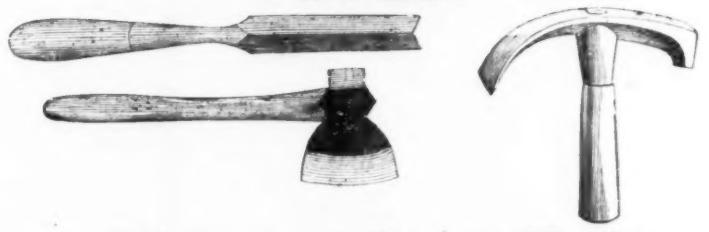
D. R. BARTON & CO.,

At the Old Stand, 136 Mill St., ROCHESTER, N. Y

Sole Manufacturers of the

D. R. BARTON & CO. BRAND OF

Carpenters' Coopers' and Pump Makers' TOOLS.



Large Knives and Barrel Machinery.

All Tools made by us are stamped D. R. BARTON & CO.,

All goods stamped **D. R. Barton & Co.**, are made at the Old Works, and by the old men, from the Best English Steel, manufactured for us by Thos. Firth & Sons and Wm. Jesson & Sons, and fully warranted.

Goods stamped **D. R. Barton** are not made at the Old Works of the company, but by a new stock company, formed about the time of Mr. Barton's decease.

IRON BLOCK PLANE.

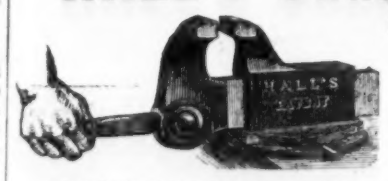
No. 110. 7 1-2 Inches Long, 1 3-4 Inch Cutter. $1·00.

STANLEY RULE AND LEVEL COMPANY, Manufacturers,

Factories, New Britain, Conn. Warerooms, 35 Chambers St., N. Y.

GET THE BEST.

HALL'S Sudden Grip VISE.



The Quickest,
Most Convenient, and
Most Complete
VISE ever devised.

A Push closes and grips. A pull opens the jaws to any extent. The Swivel is Automatic, will swing on the table to any angle and fasten itself. Made in the best manner of the best material. Send for a Circular. **AGENTS WANTED.** *Address,*

THOMAS HALL,

411 Fulton Street, - - - BROOKLYN, N. Y.

Manufactured by CHARLES PARKER, Meriden, Conn.

Forehand & Wadsworth's Double-Action

WROUGHT IRON FRAME.
Cast Steel Barrel and Cylinder.
32, 38 and 41 Cal.

SOLE AGENTS,

SCHOVERLING & DALY,

84 & 86 Chambers Street, New York.

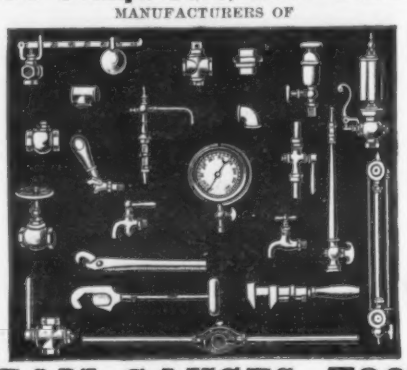
Manufacturers of Standard and O K Revolvers, Charles Daly Guns. Agents for Wesson & Harrington, J. P Clabrough & Bro. Importers of **Guns, Gun Material, &c.**
Illustrated Catalogue furnished to only those whom we know to be in the trade.

EATON, COLE & BURNHAM CO.,

58 John Street, New York.

MANUFACTURERS OF

Wrought Iron **PIPE,** Cast Iron FLANGED PIPE, **Cast Iron** RADIATORS and BOILERS.



Brass & Iron **STEAM** Gas & Water FITTINGS. PLUMBERS' MATERIALS.

STEAM GAUGES, TOOLS,
And all Supplies used by Machinists, &c.

FLORENCE

Florence Steel Skate, Price $1.00.

Florence All-Clamp Skate, Price $3.50.

Florence Clamp and Strap Skate, Price $3.00.

SKATES.

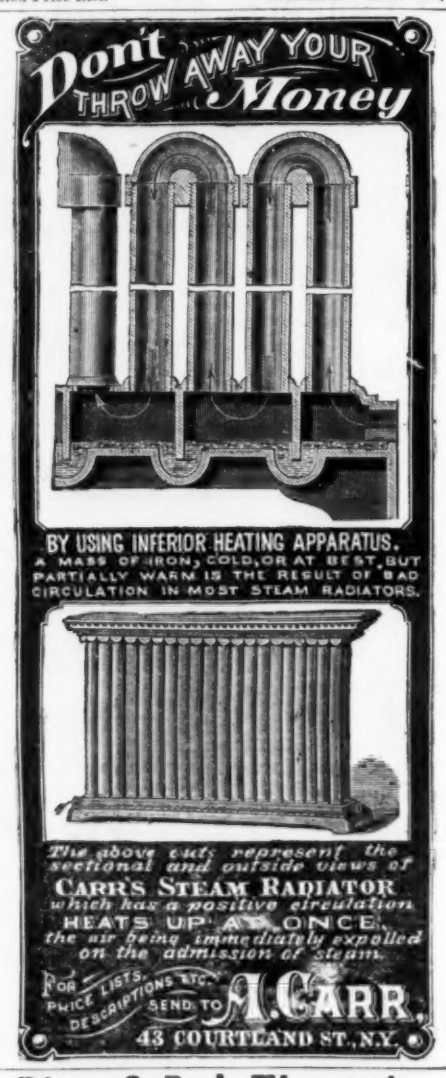
MANUFACTURED BY THE
FLORENCE SEWING MACHINE COMPANY,
FLORENCE, MASS.

THE FLORENCE SPRING SKATES, the Most Elegant and Perfect Skate in the Market. FLORENCE STEEL SKATES, "The Skate for the Million."
Every Skate Warranted Steel and free from any Imperfection.

☞ **CAUTION!** Cast Iron Skates are now being offered to the trade, made in imitation of, and often mistaken for our $1.00 Steel Skates. These Cast Iron Skates can easily be broken with the hands. All persons are hereby cautioned that we shall prosecute infringers of Letters Patent No. 154,176, Aug. 18th, 187 ; and reissue of same, No. 6410, May 4th, 1875, granted to Oliver Edwards, under which the Florence Steel Skate is manufactured.

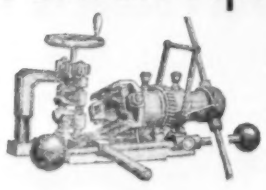
THE FLORENCE SEWING MACHINE COMPANY.
WILLIAM B. HALE, PRESIDENT.

☞ Send for Illustrated Price List.



Portable Pipe & Bolt Threader & Cutter

PRICES FROM $80 UP.



Address, EMPIRE MFG. CO., 48 Gold St., N. Y.

For Sale by

REDFIELD, BOWEN & WALWORTH CO., Chicago, Ills.
BULL & CO., Indianapolis, Ind.
McHENRY & CO., Cincinnati, O.
JOSHUA HENDY, San Francisco, Cal.
REUTER & MALLORY, Baltimore, Md.
WALWORTH MFG. CO., Boston, Mass.
RAHM & HUNTER, Richmond, Va.
LOVEGROVE & CO., Phila, Pa.

Pipe, Fittings, &c.

WROUGHT IRON
INDESTRUCTIBLE ENAMELED PIPE
For Water, Gas, Sewage & Soil Pipe.

Manufactured Solely by
NATIONAL TUBE WORKS CO.,
Also Lap Welded Steam & Gas Pipe & Boiler Tubes.
Tubing & Casing for Artesian, Oil & Salt Wells (with Patent Protecting Coupling),
A Specialty made of Large Wrought Iron Lap Welded Tubes, 8 in. to 14 in. diameter.
MACK'S PATENT INJECTOR, ETC.
Works and Offices at BOSTON, MASS., and McKEESPORT, PENN.
OFFICES AND WAREHOUSES.
New York, 78 William Street. Chicago, 112, 114 & 116 Lake Street.
Cincinnati, 119, 121 & 123 Pearl Street.

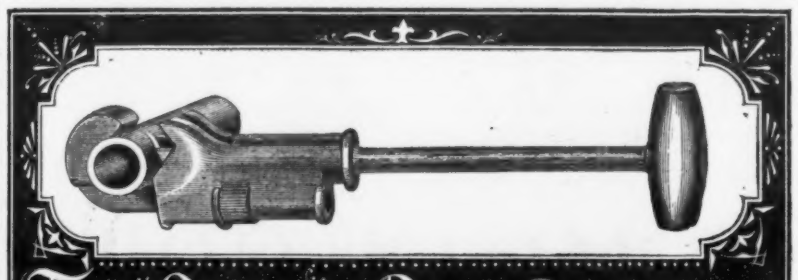
McNab & Harlin Mfg. Co.,

MANUFACTURERS OF

BRASS COCKS

For STEAM, WATER and GAS.
Wrought Iron Pipe & Fittings, Plain and Galvanized
PLUMBERS' MATERIALS.

Illustrated Catalogue sent by express to the Trade on application.
Factory, Paterson, N. J. 56 John Street, N. Y.



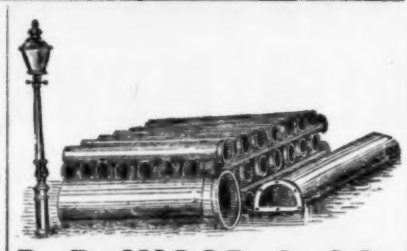
The Acme Pipe Cutter.

MADE ENTIRELY OF SOLID CAST STEEL.
Cuts Wrought Iron, Brass and Copper Pipes, Round Iron &c perfectly true without leaving burr on pipe, contracting or splitting it. Cuts out a chip similar to a lathe tool. The knife may be removed and ground. Send for descriptive circular to manufacturers.
Pancoast and Maule
PHILADELPHIA PA.

WM. ESTERBROOK
Wholesale Manufacturer of
Coal Hods,
FIRE SHOVELS, Etc.
311 Cherry St., PHILADELPHIA.

CAST IRON PIPES

FOR WATER AND GAS.
Branches Retorts, &c.
Warren Foundry & Machine Co.,
PHILLIPSBURG NEW JERSEY.



R. D. WOOD & CO.,

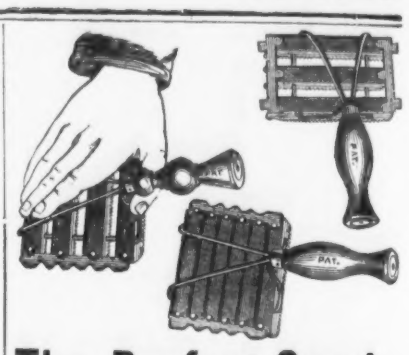
Philadelphia,
Manufacturers of
Cast Iron Pipe
FOR WATER AND GAS.
Lamp Posts, Valves, &c.,
Mathew's Pat. Anti-Freezing Hydrants.
400 CHESTNUT STREET.

GEORGE BARNES & CO.,

Manufacturers, Syracuse, N. Y.

ENCAUSTIC TILES.

ALEXANDER FINDLAY,
Importer.
99 MAIDEN LANE, N. Y.
Sole Agent in the U. S. for
CRAVEN, DUNNILL & CO., (Limited.)



The Perfect Comb.

We call your attention specially to our new patent endless wire frame comb. The result of a long series of experiments, made with a view to meeting all the requirements of a *Perfect Comb*. It is better, stronger, and more durable than any ever before invented. The raised wire shank gives what has never before been attained, viz: a rest and brace for the thumb, in such a position that the hand cannot come in contact with the horse while using the comb. The wire braces which run from the shank over the back to the front teeth give strength and durability in a direction never heretofore attained, and at the same time serve as an extra handle; and when clasped by the fingers in connection with the raised shank the comb is more firmly, easily, and completely held, and with much less fatigue to the hand than is possible in any other formation—in short, it needs but a trial to vindicate a name: **The Perfect Comb.**

THE LAWRENCE COMB CO.
Factory and Office,
382 2d Ave., cor. 22d St., N. Y.

Isaac S. Williams & Co.,

728 Market St., Philadelphia,
WHOLESALE PRICE LIST
OF
Soap Stone Griddles,
HOOPED WITH GALVANIZED IRON.

10 inch Round		per dozen,	$ 6·50
12 "	"	"	9·00
14 "	"	"	12·00
16 "	"	"	15·00
16 "	Oval	"	9·50
18 "	"	"	11·50
20 "	"	"	13·50
22 "	"	"	16·00
24 "	"	"	18·00

Liberal discount to Jobbers.

WM. S. CARR & CO.

Sole Manufacturers of
CARR'S
Patent Water Closets,
PUMPS,
Cabinet Wood Work, Vases, &c
106, 108 & 110 Centre Street,
Factory, Mott Haven, New York.

J. AUSTIN & CO.,

168 Fulton Street, N. Y.,
Proprietors and Manufacturers of
WHEATCROFT'S SELF-ADJUSTING

Pipe Wrench,
AND
Scripture's Funnel Top
MACHINE OILERS.
Dealers in
STEAM AND GAS FITTERS TOOLS.

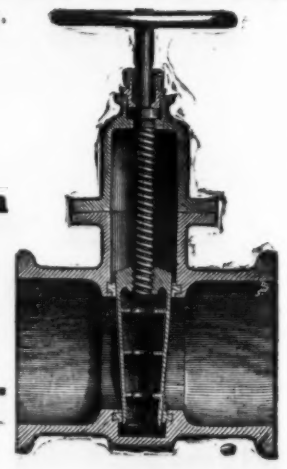
RIEHLE BROTHERS,

Ninth Street, near Coates, Philadelphia.
New York Store, 93 Liberty Street.
Pittsburgh Store, 285 Liberty Street

"Patented" Furnace Charging Scale.
Double Beam R. R. Track Scale, Compound Parallel Crane Beams, &c. Patented First Power Lever Wagon Scales. Testing Machines any capacity.

CHAPMAN VALVE MFG. CO.,

77 Kilby Street, Boston.
Water,
Gas
AND
Steam
VALVES.
Hydrants.



Send for circular.

The Iron Age Directory

and index to Advertisements.

HENRY DISSTON & SONS,

Keystone Saw, Tool, Steel and File Works.

Front and Laurel Streets, Philadelphia.

Branch Works, Tacony, Philadelphia. **Branch House, Randolph & Market Streets, Chicago, Ill.**

Our Celebrated CROSS-CUT AND WOOD SAWS.

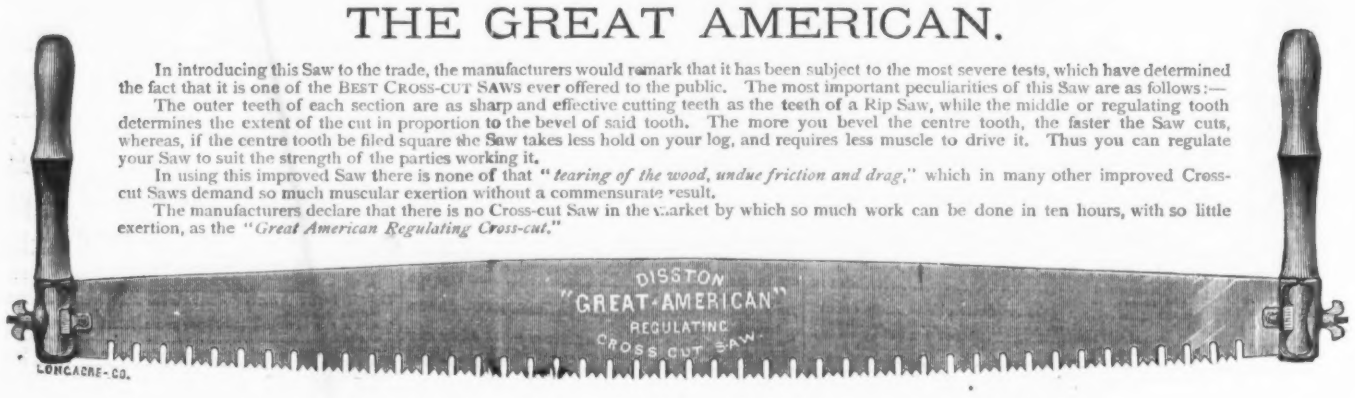
THE GREAT AMERICAN.

In introducing this Saw to the trade, the manufacturers would remark that it has been subject to the most severe tests, which have determined the fact that it is one of the BEST CROSS-CUT SAWS ever offered to the public. The most important peculiarities of this Saw are as follows:—

The outer teeth of each section are as sharp and effective cutting teeth as the teeth of a Rip Saw, while the middle or regulating tooth determines the extent of the cut in proportion to the bevel of said tooth. The more you bevel the centre tooth, the faster the Saw cuts, whereas, if the centre tooth be filed square the Saw takes less hold on your log, and requires less muscle to drive it. Thus you can regulate your Saw to suit the strength of the parties working it.

In using this improved Saw there is none of that "*tearing of the wood, undue friction and drag*," which in many other improved Cross-cut Saws demand so much muscular exertion without a commensurate result.

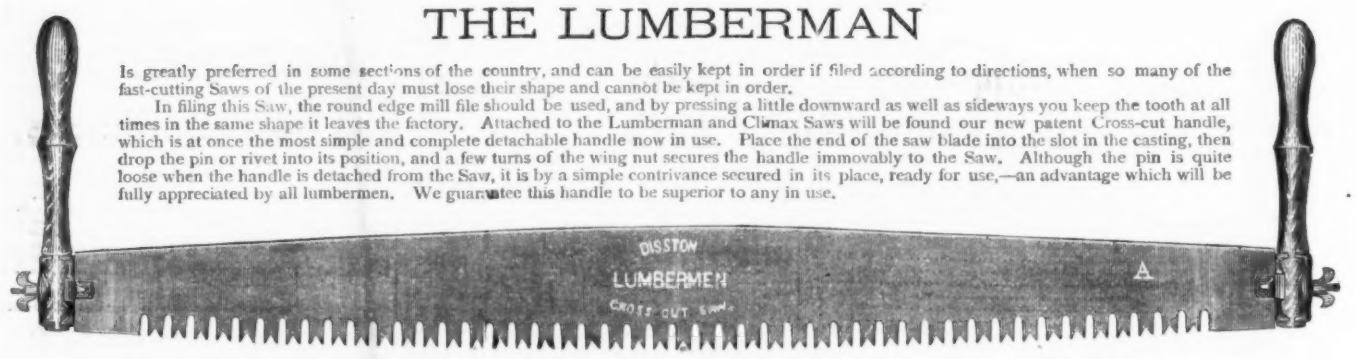
The manufacturers declare that there is no Cross-cut Saw in the market by which so much work can be done in ten hours, with so little exertion, as the "*Great American Regulating Cross-cut.*"



THE LUMBERMAN

Is greatly preferred in some sections of the country, and can be easily kept in order if filed according to directions, when so many of the fast-cutting Saws of the present day must lose their shape and cannot be kept in order.

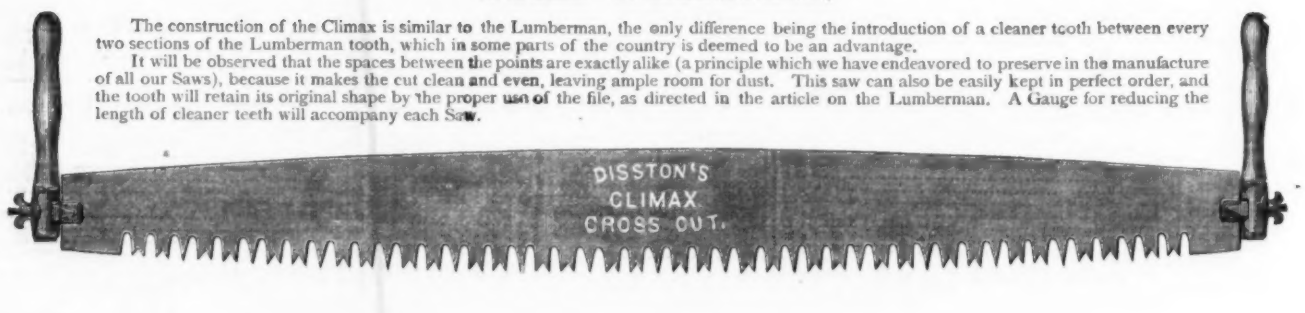
In filing this Saw, the round edge mill file should be used, and by pressing a little downward as well as sideways you keep the tooth at all times in the same shape it leaves the factory. Attached to the Lumberman and Climax Saws will be found our new patent Cross-cut handle, which is at once the most simple and complete detachable handle now in use. Place the end of the saw blade into the slot in the casting, then drop the pin or rivet into its position, and a few turns of the wing nut secures the handle immovably to the Saw. Although the pin is quite loose when the handle is detached from the Saw, it is by a simple contrivance secured in its place, ready for use,—an advantage which will be fully appreciated by all lumbermen. We guarantee this handle to be superior to any in use.



THE CLIMAX.

The construction of the Climax is similar to the Lumberman, the only difference being the introduction of a cleaner tooth between every two sections of the Lumberman tooth, which in some parts of the country is deemed to be an advantage.

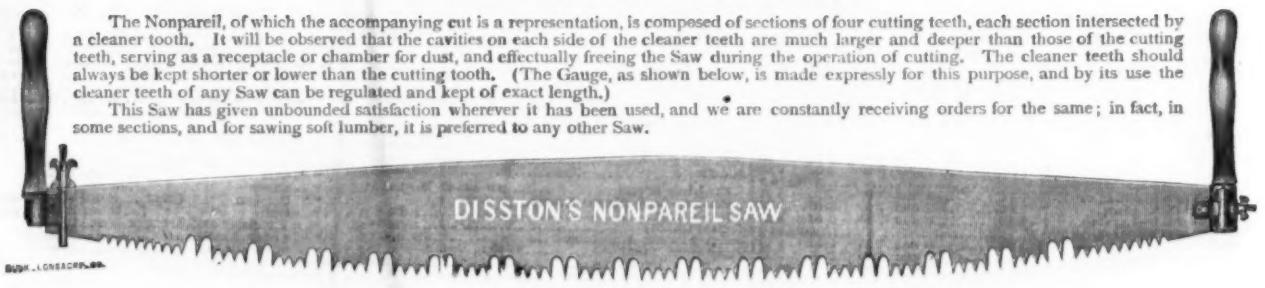
It will be observed that the spaces between the points are exactly alike (a principle which we have endeavored to preserve in the manufacture of all our Saws), because it makes the cut clean and even, leaving ample room for dust. This saw can also be easily kept in perfect order, and the tooth will retain its original shape by the proper use of the file, as directed in the article on the Lumberman. A Gauge for reducing the length of cleaner teeth will accompany each Saw.



THE NONPAREIL.

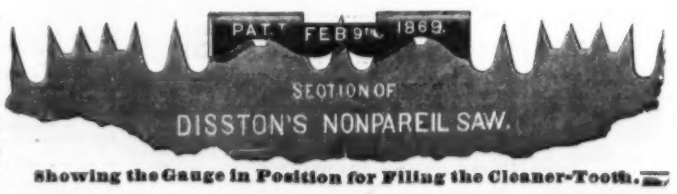
The Nonpareil, of which the accompanying cut is a representation, is composed of sections of four cutting teeth, each section intersected by a cleaner tooth. It will be observed that the cavities on each side of the cleaner teeth are much larger and deeper than those of the cutting teeth, serving as a receptacle or chamber for dust, and effectually freeing the Saw during the operation of cutting. The cleaner teeth should always be kept shorter or lower than the cutting tooth. (The Gauge, as shown below, is made expressly for this purpose, and by its use the cleaner teeth of any Saw can be regulated and kept of exact length.)

This Saw has given unbounded satisfaction wherever it has been used, and we are constantly receiving orders for the same; in fact, in some sections, and for sawing soft lumber, it is preferred to any other Saw.

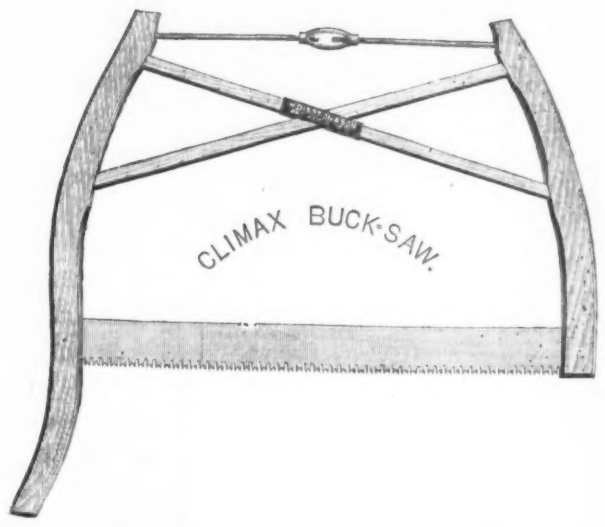


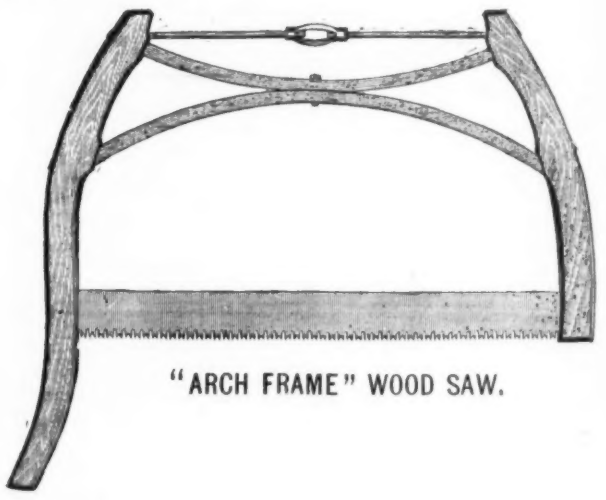
GAUGE FOR REGULATING CLEANING-TEETH.

The Cleaning-Teeth of all Saws should be somewhat shorter than the Cutting-Teeth, and, although shortened, they should be of uniform length throughout. The inner edge of the Gauge rests on the points of the Cutting-Teeth, the Cleaning-Teeth projecting through the opening in center of Gauge. Reduce the projecting points by means of a File, until arrested by the edges of the Gauge, which is made of hardened steel. Thus Tooth after Tooth can be rapidly and correctly reduced to an even length by any unskilled operator.



Showing the Gauge in Position for Filing the Cleaner-Tooth.





"ARCH FRAME" WOOD SAW.

DISSTON'S WOOD SAW FRAME.

New York Wholesale Prices, October 6, 1875.

HARDWARE.

Anvils.
Wright's. ....⅌ ℔ gold 11c ; over 250 ℔s 11¼c, gold
Armitage's Mouse Hole ....gold 11c
Wilkinson's........⅌ ℔ gold 11c
Eagle Anvils........⅌ ℔ 8c

Apple Parers.
Domestic, Turn Table, Lightning, Hudson's, Reading, Union........$7.75 ⅌ doz
Skeleton Paring, Coring and Slicing......$8 00 ⅌ doz net
Bay State, Paring, Coring and Slicing. .....$15 00 dis 10 %
Climax Slicer........8 00

Augers and Bits.
Conn. Valley Mfg. Co., Douglass, Ives, Beecher (French, Swift & Co), Griswold, Challenge........1st quality.....dis 40&10 %
Nobles Mfg. Co........dis 40 @ 40&5 %
Cook's........dis 45&10&10 %
Diamond Hardware Co........dis 25&10&10 %
Snell Mfg. Co........dis 25 %
Jennings' Bits........dis 10 %
Lewis' Single Twist Bits........dis 30 %
Andrews' Bits........dis 25 %
Griswold's Patent Bits........dis 30 %
Expansive Bits, Clark'....small, $18 ; large, $26—dis 15 %
" " Ives'........$30 @ $30—dis 30 %
" " Blake's........$30—dis 40 %
Hollow Augers, Douglass', Ives', French, Swift & Co........dis 40 %
" " Bonney's Adjustable. ⅌ doz $48—dis 25 %
" " Stearns' ....⅌ doz $48—dis 25 %
" " Ives' Expansive......each $4·50—dis 40 %
" " Universal Expansive.each $4·50—dis 10 %
Gimlet Bits—Screw, $7·50 ; no screw, $9......dis 20&10 %
Double Cut Gimlet Bits, Shepardson's........dis 20 %
" " Ct. Valley Mfg. Co..dis 30&10 %
" " Hartwell's........dis 50 %
" " Douglass'........dis 25&10 %
" " Ives'........dis 30 %
Morse's Bit Stock Drills........dis 20 %
L'Hommedieu's Ship Augers........dis 20 %
Watrous Ship Augers........dis 20 %
Vaughan's Post Hole—
6 in. $23 60 ; 7, 8 and 9 in. $25 per doz........dis 30 %

Awls, Brad Sets, &c.
Awls, Sewing........per gross $1·20—dis 15 %
" Shouldered Peg........per gross 2·25—dis 15 %
" Patent Peg........per gross ·60—dis 15 %
" Shouldered Brad........per gross 2·25—dis 15 %
Brad Sets, Aiken's........per doz $14·40—dis 25&10 %
" No. 42, $10·50 ; No. 43, $12·50........dis 45&10 %
" Clark's........dis 40&10 %
" Stanley's Excelsior........$13 50—dis 25&10 %

Axes.
Brook's........per doz $12 00 @ 14 00 net
Blood's........per doz $15 00 @ 16 50—dis 20 %
Hunt's........⅌ doz $12 50 @ 14 00
Collins'........⅌ doz 11 00 @ 15 50 net @ dis 5 %
H. Clark's (J. C. W. & Co.) bron'd or red. ⅌ doz $10 00 net
Hurd's........⅌ doz 10 50 @ 12 50
Simmons'........⅌ doz 11 00 @ 11 50
Morris'........⅌ doz 12 50 @ 13 50
Red Jacket........⅌ doz 12 00 @ 12 50
Mann's........⅌ doz 11 50 @ 13 00
" Double Bitted........⅌ doz 21 50 @ 22 00
Underhill's........⅌ doz 12 00 @ 13 00
" Crown........⅌ doz 12 50 @ 13 50
John Leverett's........⅌ doz 12 50 @ 15 50
Ten Eyck........⅌ doz $10 50 @ 12 50 net
M. H. Jones & Co........⅌ doz 10 50 @ 11 50 net
Nobles Mfg. Co........per doz $10 50, net
Elephant........per doz $10 50 @ 11 50 net

Axle Grease.—Frazer's........⅌ ℔ 6c.

Balances........dis 35 %

Bands.—Plated........new list dis 50&5 %
Iron Rim........new list dis 25&5 %
Brass (Plated list)........new list dis 50, 10&5 %
Oroide........new list dis 50&5 %

Bells.
Hand, Light Brass........dis 70&10 %
" Extra Heavy........dis 40&10 %
" White Metal........dis 50&10 %
" Silver Chime........dis 20&10 %
" Swiss........dis 25 %
" Globe (Cone's Patent)........dis 20&10 %
Gong Abbe's........dis 20&10 %
" Yankee........dis 35&10 %
" Barton's........dis 35 %
Crank, Taylor's........dis 25 %
" Brook's........dis 50 %
" Cone's........dis 10 %
" Connel's........dis 50&10 %
Lever, Sargent's........dis 60&10&10 %
" Taylor's........dis 25 %
" Hart, Bliven & Mead Mfg. Co........dis 50&10 %
Pull, " " " "........dis 50&10 %
" Brook's........dis 50 %
" Western........dis 25 %
Call........dis 15 %
Cow—Common Wrought........dis 20&10 %
" Western........dis 20&10 %
" " Sargent's........dis 50&10&10 %
" Kentucky "Star"........dis 20&10 %
" " Sargent's........dis 50&10&10 %
" Dodge's Genuine Kentucky, new list—
Nos. 0 1 1½ 2 3 4 5 6 Hog.
$12·00 10·00 9·00 8·00 6·00 5·00 3·50 2·50 5·00—dis 45 %
" Yaw's Genuine........dis 35 %
" Texas........dis 40 %

Bellows.
Blacksmiths', Common, List of Sept. 15........dis 15 %
" Extra and Pittsburgh Pattern.....List net
Moulders'........dis 30 %
Hand Bellows........dis 10 %

Blind Adjusters.—Domestic.....⅌ doz $3—dis 20 %

Blind Fasteners.
Mackrell's........dis 30 %
Van Sand's, No. 2000, $14·00 ; No. 3705, $10·50.net @ dis 5 %
Washburn's Patent........⅌ gross $14 00 net
Merriman's........new list net

Blind Staples.
Boardman's Patent, ⅜ in. and larger........⅌ ℔ 37 c
" ⅝ in........" 42 c

Blocks.
Tackle, Rope and Iron Strapped, Providence Tool Co.'s list........dis 30 %
Burr's........dis 10 %
Stanley Rule and Level Co........dis 25&10 %

Bolts.
Cast Iron Barrel, Shutter, &c........dis 60&10 %
Cast Iron Chain........dis 60&10&10 %
Wrought Iron Barrel........dis 50, 10&10 %
" " Square........dis 50, 10&10 %
" " Shutter........dis 60&10 %
Wrought Iron Flush, Stanley's........dis 15&10 %
" " " Sargent's........dis 50&10&10 %
Carriage and Tire, Common........dis 75 %
" " Norway Iron........dis 50&10 %
" " R. B. & W........(old list) dis 60 %
" " " Philadelphia........dis 60 %
" " " Shelton's........(old list) dis 60&10 %
Union Nut Company, old list........dis 60&10 %
Stove........dis 25 %
" R. B. & W........dis 25 %
" Shelton's Shaved Head........dis 25 %

Borax........15c. ⅌ ℔

Boring Machines.
Upright. Angular.
Hovey's, no Augers........$3·15 $4·00 net
" with Augers........5·00 6·00 net
Douglass', no Augers........3·25 4·00 net
" with Augers........5·00 6·00 net
Parr's, no Augers........5·00 7·50 dis 30 %
" with Augers........7·50 10·00 dis 30 %
Kellogg's, no Augers........5·25 6·75 dis 15 %
Sweets', "........4·75 6·25 dis 15 %
Snell's, "........4·75 6·25 dis 20 %
Phillips', with Augers........10·00 dis 25 %
Mortising Machines, $20·00 each........dis 20 %

Bow Pins.
Union Nut Co........new list dis 50&10&5 %
Hotchkiss'........dis 50 @ 55 %
Humason, Beckley & Co.'s........dis 50&10&5 %
Sargent & Co.'s........dis 50&10&10 %

Braces.
Barber's Patent........dis 40&5 %
Q. S. Backus........dis 40&10 %
Wilson Mfg. Co........dis 10 %
Spofford's Patent........dis 50 %
Noble's Patent........dis 40&5 %
Ives' Novelty........dis 40&7½&10 %
" Hamden........dis 15&10 %
Common Ball (American)........dis 15&10 %

Brackets.—Shelf........dis 60&10 @ 65&10 %

Bright Wire Goods........dis 65&10&10 %

Bull Rings.—Union Nut Co., new list. dis 50&10&5 %
Sargent's........dis 60&10 %
Hotchkiss'........2½ in., $2·25 net

Bung Hole Borers.
Common and Ring........dis 20&10 %
Ives' Two Borers........dis 10&10 @ 25 %
Enterprise Mfg. Co........dis 20 %

Butchers' Cleavers.
Humason & Beckley Mfg. Co........dis 20&10 %
Bradley's........dis 25 %
Beatty's........dis 20 %
2 3 4 5 6 7 8 8
$19·50 $21·50 $24·00 $27·00 $30·00 $33·50 $36·50 $40·00
Hart Mfg. Co........dis 45&10 %
0 1 2 3 4 5 6
$25·25 $29·75 $34·25 $38·75 $43·25 $43·50 $54·00

Butts.
Wrought Brass........dis 30 %
Cast Brass........dis 20 %
Common Cast, not Drilled.
Fast Joint, Narrow........New list July " dis 30&10 %
" Broad........" dis 40&10 %
" " Jap'd........" dis 35&10 %
Loose Joint, Narrow and Broad........" dis 50&10 %
" " " Jap'd........" dis 45&10 %
Parliament Butts & Mayer's Hinges........" dis 40&10 %
Loose Pin........" dis 45&10 %
" Japanned........" dis 45&10 %
" " Plated Tips........" dis 50&10 %
Drilled and Wired.
Fast Joint, Narrow........New list July 1, dis 25&10 %
" Broad........" dis 35&10 %
" Jap'd, with and without Acorns........" dis 30&10 %
Loose Joint........" dis 45&10 %
" Jap'd with and without Acorns........" dis 45&10 %

Parliament and Mayer's Hinges " dis 35&10 %
Loose Pin........" dis 40&10 %
" Japanned........" dis 50&10 %
" " Plated Tips........" dis 45&10 %
Union Mfg. Co., Figured Enameled L. J.....dis 55&10 %
Union Mfg. Co., Nickel Pl. L. J. Capped Iron and Bronze........dis 33⅓&10 %
" " Boston Finish, Plain, without Acorns........dis 80&5 %
" " Boston Fin. with Iron Acorn..dis 75&5 %
" " " " Silvered "..dis 65&5 %
Wrought Iron.
Fast Joint, Narrow, Lt. and Regular........dis 30 %
" Broad........dis 35 %
Loose Joint, Narrow and Broad........dis 35 %
Table Butts, Back Flaps, &c........dis 30 %
Inside Blind, Regular........dis 30 %
" " Light........dis 40 %
Loose Pin, Wrt........dis 35 %
Am. Spiral Spring Butt Co.. list May 1st........dis 25 %
Union Spring........dis 20 %
Blind Butts, Parker........dis 65 %
" Palmer........dis 40 %
" Seymour........dis 55&10 %
" Shepard........dis 60 @ 60&10 %
" Lull & Porter........dis 60 %
" Nicholson........dis 45&10 %
" Huffer........dis 33⅓&10 %
" Garretson, No. 1........dis 65 %
" Clark's, Nos. 1, 3 and 5........dis 65 %
" Clark's No. 2........dis 65&10 %
" " Nos. 2, 4, 4½, 6, 8, 10........dis 45 %

Caps—Percussion, per 1000.
G. D........37 @ 40c
Ely's E. B........1-4s, 56c. ; 1-10s, 70c. gold
" Double Waterproof, 1-4s, $1·45 ; 1-10s, $1·52½c., gold
Colt's........1-10s 80c gold

Carpet Sweepers.
Union........each $2 75 net
Welcome........each 2 75 net

Cartridges.—Metallic........dis 55&5 %

Cards.—Horse and Curry........dis 30&10 %
Cotton........dis 10&10 %
Wool........dis 15&10 %

Carpet Stretchers.
Cast Steel, Polished........per doz $5·00 dis 30 %
Cast Iron, Steel Points........per doz $2·00 dis 45&5 %

Casters.
Bed........dis 30&10 @ 40 %
Plate and Shallow Socket........dis 40&10 %
Deep Socket........dis 35 @ 40 %

Cattle Leaders........new list dis 60&10 %

Chain
English Coil........net gold
⅌ ℔ 11¼ 8⅝ 7⅞ 7½ 7¼ 7c
3-16 ¼ 5-16 ⅜ 7-16 ½
Trace, 6½-10-2........by the cask, ⅌ pair, gold 55c
Trace, 7-10-2........by the cask, ⅌ pair gold, 62c
German Halter Chain........dis 25 % gold
German Coil........dis 25 % gold
Galvanized Pump Chain........⅌ ℔ 13c
Jack Chain, Iron........dis 50&10 %
" Brass........dis 40&10 %

Chalk.
White........⅌ gross, 57c net
Red........⅌ gross, 90c net
Blue........⅌ gross, $1·00 net
White Crayons........⅌ gross, 16½c net

Chisels.
Socket Framing, Douglass, Extra........dis 60&10&10 %
" " Crossman........dis 50&15&10 %
" " Buck Bros. equivalent to dis 50&17½ %
" " Hart Mfg. Co........dis 60&10 %
" " Merrill........dis 60&10 %
" Firmers, Douglass, Extra........dis 60&10 %
" " Crossman........dis 50&10&10 %
" " Buck Bros.....equivalent to dis 50&15 %
" " Hart Mfg. Co........dis 60&5 %
" " Merrill........dis 60 %
Socket Corner........dis 60&10 %
Tanged Firmers........dis 40&10 %
" " Butcher's........$5·50 to £ gold
" " Newbould's........$5·50 to £ gold
" " Spear & Jackson's........$5·50 to £ gold
" " Buck Bros (Shank)........$5·50 to £ gold

Clamps.
Cabinet........dis 60&10 %
Gray's........dis 20 %
Lambert's........dis 20 %
Providence Tool Co........dis 10 %

Clips, Axle.
Norway or Best........dis 40 %
Superior........dis 50 %
"Star," Superior Philadelphia........dis 45&5 %

Coal Shovels.
Edgar's Pat. "Gem," Short and Long H'dled.....dis 30 %
Iron Handled........⅌ doz, $ 85 @ 1 25
Wooden Handled........⅌ doz, 1 00 @ 2 00

Coal Hods.—Smith, Burns & Co........dis 15 @ 25 %
14 15 16 17 18 inch.
Japanned........$6·00 6·35 6·75 7·50 8·00 per doz.
Galvanized........9·50 10·00 10·75 11·50 12·50 "
Morning Glory Funnel Hods—
No. 15 16 17
Japanned........$9·00 10·50 12·00 per doz
Galvanized........13·00 14·50 16·00 "
Sidney Shepard & Co.'s new list........dis 10 %

Cockeyes....1¼ in., 28c. ; 1½ in., 33c. ; 1¾ in., 37c. net

Cocks.
Brass Racking........dis 35 %
Lock and Globe........dis 35 %
Lever Bibbs........dis 35 %
Ale and Beer........dis 25&10 %

Coffee Mills.
Board and Box........dis 15 @ 20 %
Brighton........dis 20 %
Increase Wilson's........dis 20 %
Selsor's Pat........$9·50, $10·50—dis 25 %
American (Enterprise Mfg. Co.)........dis 20 %
French Steel........dis 15 %
The Swift........dis 20 %

Compasses and Dividers.
Bemis & Call Co.'s........dis 55&10 %
Cook's........dis 15 %
Excelsior........dis 30 %
Peck Stow & Wilcox........dis 25 %
Miller's Patent........dis 25&10 %

Coopers' Tools.
Bradley's........dis 15 @ 20 %
Chas. E. Little........dis 20 @ 25 %
Swan & Brombacher........dis 15 @ 20 %

Corkscrews........dis 25 %

Corn Knives and Cutters.
Bradley's........dis 10 %

Crow Bars.
Cast Steel........⅌ ℔ 11c. net
Iron, steel points........⅌ ℔ 5c

Crucibles.—Gautier & Co........⅌ No. 5½c

Curling Irons, &c.
⅛, ⅜, ⅝ in., $1·80, $2·00, $2·40........dis 10 %
Curling Tongs........⅌ doz $6 50—dis 15 %
Pinching Irons........⅌ doz 7 50—dis 20 %

Curry Combs.
Hotchkiss' & Kellogg's, Iron & Brass, old list.....dis 40 %
Fitch's (List of No. 240, $1)........dis 20&10 %
Rubber........⅌ doz, $9·00—dis 15 %
Wood Tooth (Fuller Bros.)........per doz $2·25 net

Curtain Pins.—Silvered Glass.old list dis 52½ @ 55 %

Cutlery.
American Table { Meriden } New list Jan. '75, dis 25 %
American Pocket { Cutlery Co }........dis 25 %
Am. Pocket—Humason & Beckley Mfg. Co...dis 20&10 %
Am. Miller Bro.'s Cutlery Co........dis 25 %
Naugatuck Cutlery Co........dis 25 %

Dippers.
Britannia........per doz 7·50—dis 30 % ; by bbl. dis 33⅓ %
Cocoa, Plain........per doz $3·25—dis 20 %
" Rimmed........per doz 3·75—dis 20 %

Dog Collars.
Embossed Gilt........dis 20 %
Leather........dis 20 %
Brass........dis 25 %

Door Springs.
Gem (V.W.&W.), No. 1 Large, Jap'd ..⅌ doz $3·50 } dis
" " No. 2 Medium........⅌ doz 2·50 } 10 %
" " No. 3 Small........⅌ doz 2·00 }
Gray's (V.W.&W.)........⅌ doz 2·50 net
Torrey's Pattern (V.W.&W.)........⅌ doz $2·50 net
Torrey's Patent........⅌ doz $2·50 net
Johnson's........per doz $3 00 @ 4 00
Philadelphia........5 in., $5·00 ; 8 in., $7·00 dis 15 %
Palmer's Japanned No. 6........⅌ doz $5·00 }
" Coppered "........" 6·00 } dis 20 %
" Silvered "........" 8·00 }
Challenge.—
Japanned........No. 9, per doz $ } ......
No. 7, " }
No. 6, " }
Barker's Concealed........dis 12½ %

Drawing Knives.
Crossman's No. 1........dis 50&15&10 %
Douglass, Extra........dis 60&10&10 %
Hart Mfg. Co., No. 1........dis 60 %
Merrill........dis 60&10 %
Nobles Mfg. Co........dis 15 %
Bradley's........dis 25 %
Adjustable Handle........dis 15 %

Drills and Drill Stocks.
Blacksmiths'........each $2 60 net
" Self-Feeding........each $8 00 net
Breast, P. S. & W........dis 45 %
" Miller's Falls........dis 25 %
" Aiken's........dis 25&10 %
" Hotchkiss........dis 10 %
" Wilson's........dis 10 %
Ratchet, Merrill's........dis 20 %
" Ingersoll's........dis 35 %
" Whitney's........dis 20 %
" Weston's........dis 20 %
" Moore's Triple Action........dis 20 @ 25 %
Wilson's Drill Stocks........dis 10 %
Automatic Boring Tools........each $2·75—dis 20 %

Drill Chucks.—The Danbury..each 10·00, dis 20 @ 25 %
Beach Patent (Morse)........dis 15 %

Egg Beaters.
Monroe's........8 in. 10 in.
Per doz $8·00 9·00........dis 10 %
Dover........⅌ doz $6·00—dis 10 %
National........⅌ doz $4·50—dis 20 %
Peerless........⅌ doz $3·00—net

Emery.
Genuine Chester—Regular Nos........⅌ ℔ 6c } dis 10 %
" Flour and FF........⅌ ℔ 4c }
Washington Mills—Regular Nos........⅌ ℔ 8c
" Flour........⅌ ℔ 5c

Enameled and Tinned Ware.
Kettles........dis 30 @ 40 %
Sauce Pans........dis 25 %
Glue Kettles........dis 20 @ 25 %
Tinned Saucepans........dis 25 %

Escutcheons.
Door Lock........Same discounts as Door Locks
Brass Thread........dis 60&10 %
Wood........dis 25 %

Faucets.
Fenn's........dis 50 %
" Cork Stops........dis 40 %
Star........dis 55&10 %
Frary's Patent Petroleum........dis 15&10 %
Taylor's Pattern "........dis 20&10 %
Wood and Metallic........dis 40 %
Wood, Cork Lined........dis 60&10 %
Enterprise Mfg. Co., Self-Measuring........dis 20 %

Felloe Plates........⅌ ℔ 15c ; dis 25 %

Files.
American File Co........$5 00 to £ currency—dis 20 %
Arcade File Works........$5·00 to £ currency
Auburn File Works........$5 00 to £ currency
Nicholson........new list, Jan. 1, 1875, net @ 5 %
Hartford File Co........$5 50 to £ currency—dis 10 %
L. B. Heller & Co........$5 00 to £ currency
Heller & Bros........$5 00 to £ currency
"Western"........5 00 to £ net
Wheeler, Clemson & Co........$5 00 to £ currency
Rothery's........$5 to £ currency
J. & Riley Carr........5 25 to £ gold
" " Horse Rasps........5 50 to £ gold
Stubs'........8 50 @ 9 00 to £ gold
Butcher's........5 25 to £ gold
Walter Spencer & Co.'s "Diamond"........5 00 to £ gold
Spear & Jackson's........5 00 to £ gold
Jowitt's........5 00 to £ gold
Newbould's........5 25 to £ gold
W. K. & C. Peace's "Imperial"........5 25 to £ gold
R. Ibbotson........5 00 to £ gold
Turton Bros. & Matthews........$5 50 to £ currency
Fisher's........4 75 to £ gold
Goodlad's........4 00 to £ gold
Moss & Gamble........5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) 5 00 to £ gold
" " Horse Rasps........5 25 to £ gold
"Philo Sheffield," P. T. Co........5 00 to £ gold
Limet & Co. (French)........5 00 to £ gold

Fluting Machines.
Mrs. Coles' Pony..4 in., $4·75 ; 5 in., $5 ; 6 in., 5·50 ; 7 in., $6
Knox, with 4-inch Rolls........3 80 each net
" " 6 "........4 90 each net
" " 8 "........6 75 each net
O. K........6 50 each net
Peerless, 4-inch Rolls........4 00 each net
" 5 " "........4 75 each net
Excelsior, No. 1........4 75 each net
" No. 2........6 50 each net
Diamond........7 50 each net
Champion, 6 inch rolls........6 00 each net
" 4 inch rolls........5 00 each net
Climax 7-inch Rolls........8 00 each net
" 4½ "........6 50 each net
Empire........4 00 each net
Eureka, No. 1, 7-inch Roll........8 00 each net
" No. 2, 5-inch Roll........6 00 each net
K. F. M., 4½-inch Roll........5 50 each dis 15 %
" 6-inch Roll........6 00 each dis 15 %
Myers' Fashion Fluter, 4½-inch Rolls........2 75 each net
" Convex Brass Fluter, Sad Iron attachment........per doz $15·00
Domestic Fluter........$1·50 each net
Geneva Hand Fluter........$15 00 per doz net

Fluting Scissors........dis 25&10 %

Forges.
"Empire" (W. P. Kellogg & Co.)........dis 20 %

Forks.
Hay, Manure & Spading........dis 33⅓ %
Plated A 1........dis 50 %

Fry Pans.
Burnished, P. S. & W., new list........dis 50 %
⅌ doz.....$3·00 3·75 4·25 4·75 5·25 6·00 7·00 8·00 9·00
No. 0 1 2 3 4 5 6 7 8
Smith, Burns & Co., "Excelsior" Polished........dis 35 %
⅌ doz........$3·70 4·00 4·70 5·30 6·00 7·00 8·00 9·00
No........1 2 3 5 6 7 8

Gas Stoves.
Tifft & Howard........dis 20 %

Gauges.
Marking........dis 45&10 %
Wire........dis 10 %
" Smith's Patent........per doz $18·00, dis 40 %

Gimlets.
Nail and Spike........dis 25&10 %
Double Cut, Shepardson's........dis 20 %
" " Hartwell's........dis 40 %
" " Ives'........dis 25 %
" " Douglass'........dis 20&10 %

Grind Stone Fixtures
Sargent's Patent........dis 65&10 %
Reading Hardware Co........dis 65&10 %
J. F. Green & Bro........dis 20 %
Hart Mfg. Co.'s........dis 60&5&10 %
Rick Bros........dis 45&5 %

Hammers.
Emmet Hammer Co.'s Handled........dis 25 %
" " Sledge & Stone. ⅌ ℔ 40c. ; dis 40 %
Humason & Beckley Mfg. Co........dis 16⅔&10 %
Maydole's........dis 12 %
Cheney's........net @ dis 5 %
Verree........dis 5 %
Yerks & Plumb........dis 20 %
Magnetic Tack........dis 25&10 %
Warner & Noble's........dis 10 %

Hand Cuffs and Leg Irons.
Tower's Hand Cuffs, $4 00 per pair........} dis 25 %
" Leg Irons $6 50 per pair........}
Providence Tool Co.'s Hand Cuffs.. $15 per doz } dis 10 %
" " Leg Irons... 25 " }

Handles.
Door or Thumb Latches—
Nos. 0 1 2 3 4
Per doz $0·80 1·00 1·18 1·35 1·50—dis 60 %
Roggin's Latches........40c. @ 50c. net
Bronzed Iron Drop Latches........per doz $1·30 net
Wrought Chest........dis 60&10 %
Surface Chest........dis 65&10&10 %
Flush Chest........dis 60&10&10 %
Lifting........dis 60&10 %
Coffin........dis 50&10 @ 60&10 %
Saw and Plane........dis 25&10 %
Hammer and Hatchet........dis 10 %
N. Carolina Handle Co........dis 15 %
Brad Awl........per gross $3 50—dis 20&10 %
Hickory Firmer Chisel, ass'td " 5 25—dis 20&10 %
" " " large " 6 50—dis 20&10 %
Apple " " ass'td " 6 00—dis 20&10 %
" " " large " 7 50—dis 20&10 %
Socket " " ass'td " 3 50—dis 20&10 %
" Framing " " " 7 00—dis 20&10 %
File........" " 4 00—dis 20&10 %
Auger........" " 6 50—dis 20&10 %
" large " 8 00—dis 20&10 %
Patent Auger, Ives'........dis 25&10 %
" " Douglass'........per set $1 25—dis 10 %
" " Swan's........per set $1 00—dis 20&10 %

Hangers.
Barn Door........dis 65&10 %
"Anti-Friction"........dis 40 %
Novelty........dis 30 %
Challenge........dis 40 %

Harness Snaps.
Henshaw's........dis 25&10 %
Judd's........dis 40 %
Fitch's (Bristol)........dis 30 %
Hotchkiss'........dis 10 %
Andrews'........dis 25 %
Sargent's........dis 50&10 %
New York Wire........dis 20&20 %

Hatchets.—Isaiah Blood........dis 15 %
Shingling, Nos. 1 2 3........⅌ doz $7 25 8 00 8 75
Claw, " 1 2 3........⅌ doz 7 75 8 50 9 25
Lathing, " 1 2 3........⅌ doz 7 50 8 00 8 50
Hunt's........dis 10 %
Shingling, Nos. 1 2 3........⅌ doz $7 25 8 00 8 75
Claw, " 1 2 3........⅌ doz 7 75 8 50 9 25
Lathing, " 1 2 3........⅌ doz 7 50 8 25 9 00
Hurd's........dis 25 %
Shingling, Nos. 1 2 3........⅌ doz $8 00 8 50 9 00
Claw, " 1 2 3........⅌ doz 9 00 9 50 10 00
Lathing, " 1 2 3........⅌ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s........dis 25 %
Shingling, Nos. 1 2 3........⅌ doz $6 50 7 00 7 50
Claw, " 1 2 3........⅌ doz 7 25 7 75 8 25
Lathing, " 1 2 3........⅌ doz 6 50 7 00 7 50
Yerkes & Plumb........dis 20 %
Shingling, Nos. 1 2 3........⅌ doz $7 00 7 50 8 00
Claw, " 1 2 3........⅌ doz 7 50 8 00 8 50
Lathing, " 1 2 3........⅌ doz 7 00 7 50 8 00
Simmon's........dis 15 %
Shingling, Nos. 0 1 2 3....⅌ doz $7 50 8 00 8 50 9 00
Claw, " 1 2 3....⅌ doz 9 00 9 50 10 00
Lathing, " 1 2 3....⅌ doz 8 00 8 50 9 00
Broad, " 1 2 3....⅌ doz 9 00 10 00 12 00
" " 4 5 6....⅌ doz 14 00 16 00 18 00
" " 7 8....⅌ doz 20 00 22 00
Elephant........dis 30 %
Shingling, Nos. 1 2 3........⅌ doz $8 00 8 50 9 00
Claw, " 1 2 3........⅌ doz 9 00 9 50 10 00
Lathing, " 1 2 3........⅌ doz 8 00 8 50 9 00
J. P. Verree & Co........dis 5 %
Shingling, Nos. 1 2 3........⅌ doz $7 00 7 50 8 00
Claw, " 1 2 3........⅌ doz 7 50 8 00 8 50
Lathing, " 1 2 3........⅌ doz 7 00 7 50 8 00
Underhill's........dis 10 %
Shingling, Nos. 1 2 3........⅌ doz 7 25 8 00 8 75
Claw, " 1 2 3........⅌ doz 7 75 8 50 9 25
Lathing, " 1 2 3........⅌ doz 12 00 11 00 13 00
M. H. Jones & Co........dis 25 %
Shingling, Nos. 1 2 3........⅌ doz $8 00 8 50 9 00
Claw, " 1 2 3........⅌ doz 9 00 9 50 10 00
Lathing, " 1 2 3........⅌ doz 8 00 8 50 9 00

Hay Knives.—"Lightning"......per doz $20·00 net

Hinges.
Gate, Western........⅌ doz $6·25—dis 60&10 %
" N. E........⅌ doz 11·25—dis 60&10&10 %
" N. Y. State........⅌ doz 7·20—dis 60&10 %
Rolled Plate........dis 65&10 %
" Raised........dis 65&10 %
Wrought Strap and T........dis 33⅓&10&5 %
Providence Plate. { 6 and 8 in. 11c ⅌ ℔ / over 8 in. 9½c ⅌ ℔ } ....dis 80 %
Screw Hook and Strap........{ 8, 10, 12 in. 6½c / 14 to 36 in. 5½c } ....net
Heavy Welded Hook........{ 8 to 12 in., 6½c / 14 in. & up, 6c } ....net
Screw Hook and Eye........{ ⅝ to 1 in., 8½c / ⅜ in. 9½c / ¼ in. 11½c } ....net

Hoes.
Solid Shank, C. S........⅌ doz $8 00—dis 35 %
Socket........⅌ doz 9 00—dis 35 %
Riveted Eye........⅌ doz 5 00—dis 35 %
Grub........dis 25 %
Planters........net @ dis 5 %
Scovill........add 33⅓ %
Scovill Pattern........net @ dis 5 %
Lane's C. S. Cresent, American Pattern........list net
" " " Scovil Pattern........add 10 %

Hooks.
Bird Cage........dis 60&10 @ 70&10 %
Cotton........dis 50 %

Belt........dis 55 @ 60 %
Bench—Hotchkiss' $5 00 ⅌ doz........dis 10 %
" Weston's No. 1, $8·00 ; No. 2, $7·00 per doz net
" McGill's........$3 00 per doz, dis 10 %
" Skinner's........per doz $6·25, dis 20 %
Clothes Line, Harness, Wardrobe, Hat and Coat, Ceiling. } Hart's list........dis 60&10&10 % / Sargent's list........dis 60&5&10 % / Reading list........dis 35&10 %
Wrought Staples and Hooks and Staples........dis 70&10 %
Wire Screw Hooks and Eyes........dis 65&10&10 %
Grass........dis 20 %
Whiffletree—Patent........dis 35 %
Hooks and Eyes—Malleable Iron........dis 60&10&10 %
" " Brass........dis 60&10&10 %

Horse Nails.
Nos. 5 6 7 8 9 10
American Pressed....⅌ ℔ 22c 20c 20c 20c 20c 20c
Ausable........" 30c 27c 25c 24c 23c 22c
" P't'd & Pol'd.. " 31c 28c 26c 25c 24c 23c
" " & Blued.. " 32c 29c 27c 26c 25c 24c
Cortland........" 29c 26c 24c 23c 22c 21c
Buffalo Forged........" 31c 28c 26c 25c 24c 23c
Globe, P't'd & Pol'd........" 31c 28c 26c 25c 24c 23c
National, Pointed and Polished, Pat. Fin... " 28c 25c 23c 22c 21c 20c
National, Pointed and Polished, Ex. Fin.... " 30c 27c 25c 24c 23c 22c
Perkins' Pointed and Polished........" 30c 27c 25c 24c 23c 21c
Perkins' Pointed and Blued........" 31c 28c 26c 25c 24c 22c
Putnam........" 32c 28c 26c 25c 24c 23c
Vulcan, P't'd & Blued. " 33c 30c 28c 27c 26c 25c
Star brand, 16c. ; Morgan........14c
Putnam........2000 lbs., dis 5 %
Ausable, Am. Pressed, Perkins, Globe, National and New London........1000 lbs., dis 5 %
Vulcan........1000 lbs., dis 7½ %
Vulcan and Brundage........500 lbs., dis 5 %

Horse Shoes.
Burden........⅌ keg, $5·12½
R. I. Horse Shoe Co., Perkins Pattern........⅌ keg, 5·12½
" " R. I. Pattern........⅌ keg, 5·87½
Mule Shoes........⅌ keg, 6·12½
Perkins' Snow........⅌ keg, 6·62½
Boston Rolling Mills Hand Made........⅌ ℔ 8c

Kettles.
Brass........⅌ ℔ 45c net
Enameled........dis 30 @ 40 %

Knives.
Ames' Butcher Knives........dis 20 %
" Shoe "........dis 15 %
" Bread "........⅌ doz $1·50—dis 15 %
Hay and Straw, "Wadsworth's"........dis 20 %
Table and Pocket........See Cutlery

Knobs.
Carriage (Jap'd 80 cents per gross)........dis 60&10 %
Base—Common........net
" Plush Tip........dis 10 %
" Elastic End, No. 8........dis 40&10 %
Door, Mineral........⅌ doz $2·25 }
" Por. Jap'd........⅌ doz 3·00 } .....dis 40&5 %
" " Plated........⅌ doz 7·00 } & 2 % for cash
" " Por........⅌ doz 7·50 }
Furniture, Plain........75c gross inch, dis 10 %

Ladles.
Melting, Hart's........dis 55&10 %
" Sargent's........dis 50&10 %
" Reading........dis 15&10 %

Lanterns.
Tubular........No. 0, $11·00 ; No. 1, $14·00 net
Peerless........No. 5, per doz $11·75—dis 10&10 %
Brady's Patent........dis 10 & 10 %
Ætna........dis 10 & 10 %
Yankee........dis 10 & 10 %
De Beque........dis 10 & 10 %

Lard Presses.
Draw Cut, 14 inch........each $65 00—dis 20 %

Lemon Squeezers.
Porcelain Lined........per doz $7 00, dis 15 %
Eureka, Tinned........per doz, $10·00 dis 10 %
Dunlap's Improved........per doz $6·00 net

Lines.
Linen Fish........dis 20 %
Cotton Chalk........dis 40 @ 45 %
Sil. Lake Chalk......Nos. 0, 1, 2, 3, $6, 6·50, 7, 7·50, dis 20 %
Mason's........dis 20 %

Locks and Latches.
Cabinet—Gaylord........dis 25 %
" Eagle........dis 22 %
Trunk........dis 25 %
Langstroth & Crane, Round Key........dis 40 %
" " Flat Key........dis 33⅓ %
Barnes & Deitz........dis 25 %
Continental........dis 20 %
Shepardson's........dis 20 %
American Lock Co........dis 33⅓ %
Plate........new list dis 40&2 %
Yale Lock Co........dis 40 %
Sargent & Greenleaf........dis 20 %
Trenton, Branford, Norwich, Russell & Erwin, Norwalk, Nashua, Mallory, Wheeler & Co., P. & F. Corbin, Parker & Whipple, Jacobus & Nimick Mfg. Co. ....dis 40&5 % ...and 2 % for cash
Padlocks, Russell & Erwin, " Mallory, Wheeler & Co., " Wm. Wilcox & Co. ....dis 40&5 % ...and 2 % for cash
" Romer's........dis 15 %
" Vulcan Hardware Co........dis 20 %
" New York Lock Co........dis 20 %
" J. H. McWilliams........dis 5 %
" Scandinavian Jail........dis 10 @ 15 %
" Barnes & Deitz........dis 25 %
" D. K. Miller Lock Co........dis 30 %
" Penn Lock Works........dis 20 %

Mallets.—Hickory and Lignumvitæ........dis 20 %

Meat Cutters.
Dixon's (P. S. & W.).Nos. 1 2 3 4
⅌ doz. $14 00 $17 00 $19 00 $30 00 dis 25 %
Miles Challenge......Nos. 1 2 3
⅌ doz. $22·00 $30·00 $40 00—dis 30 %
Perry's (P. S. & W.)....Nos. 200 300 400
⅌ doz. $22·00 $27·00 $40·00—dis 25 %
Woodruff's (P. S. & W.)......Nos. 100 150
⅌ doz. $15·00 $15·00—dis 25 %
Hales'........Nos. 11 12 13
⅌ doz. $27·00 $33·00 $42·00—dis 35&2 %
Draw Cut........Nos. 5 6 7
Each $56·00 $90·00 $250 00—dis 20 %
American........dis 25 @ 25&5 %
No........1 2 2½ 3 4 B 5
Each....$6·00 $9·00 $12·00 $15·00 $30·00 $60·00 $75·00

Molasses Gates.
Stebbins'........dis 62½&10 %
" Tinned ends........dis 40&10 %
Bush's........dis 20 %
Lincoln's........dis 50&10 %
Weed's........dis 15 %

Mortars and Pestles.
Iron........net

Nail Pullers.
Taft's........per doz $24·00 net

Nails........10d., $3·10 @ $3·20 net

Nuts and Washers.
Nuts........large, 6c ; small, 8c off list.
Washers........large, 8½c ; small, 10½c off list.

Oilers.
Miller's Zinc, Brass and Copper........dis 40 %
Sheet Metal Screw, Zinc, Brass and Copper........dis 40 %
Olmsted's........dis 25&10 %
Broughton's........dis 25&10 %
Malleable........per doz $5 00 dis 10 %
Prior's Patent or "Paragon"........dis 40 %

Ox Shoes.
Concave........⅌ ℔ 13c net

Ox Balls........dis 60&10 %

Pencils
Faber's Carpenters'........net
" Round Gilt........⅌ gross $6 00 net
Dixon's Lead........⅌ gross $4·50 net
" Lumber........⅌ gross 9·00 net

Picture Nails and Knobs.
Brass Head........dis 60&10 %
Porcelain Head........dis 55&10 %
Richards' Patent........dis 40 @ 40&10 %
Judd's........dis 60&10 %

Pinking Irons........per doz $2 75—dis 65 %

Planes and Plane Irons.
First Quality........dis 35 %
Second Quality........dis 50 %
Bailey's Patent Adjustable........dis 25&10 %
Plane Irons, Butcher's........$5 50 to £ gold—new list
" Buck Bros........$5 50 to £ gold
" Bailey's Patent........dis 25&10 %
" Auburn Tool Co.'s........dis 25 %
" Greenfield Tool Co........net list
" Middletown Tool Co........net list
" Ohio Tool Co........dis 10 %
" Spear & Jackson's........5 50 to £ gold—new list
" Sandusky Tool Co........dis 10 %
Plow Bits, Greenfield Tool Co........dis 10 %

Pliers and Nippers.
Button's Patent........dis 33⅓ %
Hull's Patent Nippers........dis 25 %
Leach's Patent Wire Cutters......per doz $6 50—dis 15 %
Gas Pliers........dis 25 %

Plumbs and Levels.
Stanley R. & L. Co.'s Pat. Adjustable........dis 65&10 %
" " " Non-Adjustable........dis 65&10 %
Chapin's........dis 66⅔&10 %
Standard Rule Co.'s New Adjustable........dis 60&10 %
Standard Rule Co.'s Non-adjustable........dis 60&10&10 %
Pocket Levels........dis 50&10 %
Johnson's Patent Adjustable........dis 60&10 %

Pulleys.
Hot House and Tackle........dis 60&10 %
Jap'd Screw........dis 60&10 %
Brass Screw........dis 60&10 %
Jap'd Side........dis 60&10 %
" Clothes Line........dis 60&10 %
Hay Fork........per doz $4 50 @ 5 00, dis 10 %

Pumps.
Douglas Cistern, etc........new list dis 25 %
" S. & F........new list dis 20 %
Union Mfg. Co's. Cistern and Pitcher........dis 25 %
" " " Rams........dis 20 %
" " " Garden Engines........dis 10 %

Cucumber (Burlingham & Purdy)—
ft. No 3, with 12 ft. pipe........$4·00 net
6 ft. No. 1, with 12 ft. pipe........4·50 net
From 6 to 36 ft. add 20 cents per ft.
Pipe. 8c. per ft. ; Coupling, 20c. per ft.

Punches.
Belt or Drive........per doz $1·50 net
Spring........per doz $6·50—dis 20&10 %

Rail.
Sliding Door, Wrought Brass........⅌ ℔ 44c., dis 10 %
" " Iron, Painted........⅌ foot 9c—dis 55&10 %
Barn Door, ⅝, ¾ and ⅞ inch........dis 60&10&10 %
" " for N. E. Hangers........dis 60&10&10 %

Rakes.
Cast Steel........dis 35 %
$8 00 9 00 10 00 11 00
8 10 12 14 teeth.
Malleable........dis 35 %
$5 00 5 50 6 00 6 50
9 11 13 15 teeth.

Razor Straps.
Evan's........dis 25&10 %
Genuine Emerson (B. F. Badger or C. Emerson)........dis 25 %
Imitation Emerson........⅌ doz $2·75—dis 40 %
Hunt's........dis 40 %
Chapman........dis 10 @ 15 %
Torrey's........dis 10&10 %
Saunder's........net @ 10 %

Rivets.—Old Colony.
Iron and Tinned........dis 25&7½ %
In bulk........dis 7½ %
Copper Rivets and Burrs........dis 20 %
Nos. 7 8 9 10 11 12 13 14 15
Per lb. 49c 50c 52c 54c 56c 58c 60c 65c 70c

Rivet Sets........net

Rods.
Stair........dis 40 %
" American Patent........dis 33⅓ %

Rollers.
Barn Door........revised list dis 60, 10&10 %
Novelty........dis 10 %

Rope. Manufacturers' List of Sept. 28, 1875.
Manilla........½ inch and larger ⅌ ℔ 14½c
" ....⅜ inch ⅌ ℔ 15 c
" ....¼ and 5-16 inch ⅌ ℔ 15½c
Manila Lath Yarn and Tar'd Rope........⅌ ℔ 14 c
" Hay Rope........⅌ ℔ 15 c
Sisal........½ inch and larger ⅌ ℔ 11½c
" ....⅜ inch ⅌ ℔ 12 c
Sisal........¼ and 5-16 inch ⅌ ℔ 12½c
" Hay Rope........⅌ ℔ 12 c

Rules.
Boxwood. Ivory.
Chapin's........dis 66⅔&10 % dis 50&10 %
Stanley........dis 70 % dis 55 %
Standard........dis 70 % dis 50&10 %
Stephens'........dis 70&10 % dis 55&10 %

Sad Irons.
From 4 to 10 lbs........⅌ ℔ 3¾ @ 4c net
Sad Iron. Nickel Stand attached........⅌ ℔ 9c
Self-Heating........per doz $10 00 net
" " Tailors'........per doz 22 50 net

Sand Paper.
Beader & Adamson's Flint, 00 to 1½...$4 25 ⅌ ream }
" " " 2, 2½ & 3. 4 75 " }
" " Assorted. 4 25 " } dis 15 %
" " Star........⅌ ream $3 25 }
" " Emery...⅌ ream $6 50 @ 11 50 }
New England, same list as B. & A. Flint........dis 15 %
H. B. & M. Roman Flint " "........dis 15 %

Sash Cord.
Common........⅌ ℔ 18 @ 20c. net
Patent........⅌ ℔ 24c. net
Silver Lake, Russia Flax........⅌ ℔ 55c }
" " White Cotton........⅌ ℔ 55c } net
" " Drab Cotton........⅌ ℔ 60c }
Raw Hide........dis 15 %

Sash Locks.
Clark's, Nos. 1 and 2, $10·00 per gross........dis 33⅓ %
Ferguson's........dis 33⅓ %
Norwich........dis 25 %
Walker's........dis 10 %
New England........dis 20 %

Sash Weights.—Solid Eyes........⅌ ℔ 2c

Sausage Stuffers or Fillers.
Miles........⅌ doz $30—dis 30 %
Stow or Perry.......⅌ doz No. 1, $15 ; No. 0, $21—dis 25 %
Draw Cut No. 4........each $30 00—dis 20 %

Saw Frames........per gross $18 00—dis 15&10 %

Saw Rods........$10 list, dis 10&10 %

Saws.
Spear & Jackson's old pattern........$4 50 to £ gold
Spear & Jackson's American Pattern........$3·55 to £ gold
John Spear........$3 60 to £ gold
Am. Saw Co........new list
Perforated Cross Cuts, all kinds........65c ⅌ foot
Inserted Tooth........dis 10 %
All else........dis 12½ %
Disston's Circular........dis 20 %
" Mill........dis 25 %
" Cross Cut........dis 15 %
" other kinds........dis 12½ %
H. W. Peace's Circulars........dis 25 %
" Other kinds........dis 20 %
Wm. McNiece's Hand, Cross Cut and Circular........new list dis 15 %
Wm. McNeice's Patent Pole Pruning Saw........dis 10 %
" " Compass Saw........net.
E. M. Boynton's Lightning........dis 40 %
" Others........dis 15 %
Wheeler & Clemson Mfg. Co.'s Hand........dis 15 %
" " " Cross-Cut........dis 30 %
Livingston's Butcher and Kitchen........dis 15 %
" Framed Wood—
Nos. 101 102 103 105 106
Per doz $12·00 10·00 12·00 9·00 7·00—net

Saw Sets.
Stillman's Genuine........⅌ doz $5·00—dis 10 %
" Imitation........⅌ doz 3·25—dis 20 %
Common Lever........per doz $2·00 dis 20 %
Leach's........No. 0, $8·00 ; No. 1, $15·00 dis 15 %
Nash's........No. 1, $8·50 ; No. 2, $5·50 dis 20&10 %
Hammer, Hotchkiss........$5·50 dis 10 %
" Bemis & Call's........dis 20 %
" Aiken's Genuine........$15·00 dis 25&10 %
" " Imitation........$7·00 dis 25&10 %

Scales.
Hatch, Counter........⅌ doz $36—dis 25 %
" Tea........⅌ doz $15—dis 25 @ 30 %
Union Platform........$6·00, $7·50—dis 40 %
Turnbull's........dis 20 %
Brown's........dis 25&5 %
Fairbanks'........new list dis 15 @ 20 %
Howe's........dis 15&5 %
Chatillon's Grocers'........dis 25 %
" Eureka........dis 20 %
Universal Family........dis 25 %
Scale Beams.
No. 1 300 to 1200 lbs........90c ⅌ cwt } dis 30&10 %
No. 2 " "........75c ⅌ cwt }

Scrapers.
Box, 1 Handle........per doz $5·00, dis 10 %
" 2 "........per doz 6·00, dis 10 %
Foot........dis 60 & 10 %
Ship (common)........per doz $3 00 net
Ship—Providence Tool Co........dis 10 %

Screw Drivers.
Hart, Bliven & Mead........dis 55&10 %
Douglass Mfg. Co........dis 25&10 %
" " No. 1........dis 20&10 %
Disston's........dis 40&10 %

Screws.
Flat Head Iron, List of September 1, 1875........dis 30 %
Round Head Iron " " "........dis 20 %
Flat Head Brass " " "........dis 30 %
Round Head Brass " " "........dis 20 %
Round Head Silver Capped, List March 1........dis 25 %
Hand Rail........dis 55&10 %
Coach or Lag........dis 30&10 @ 40 %
Coach, Patent Gimlet Point, List Jan. 1, 1875........dis 35 %
Bed........list net
Japanned, List of Sept. 1, 1875........Net
Machine—Flat Head, Iron, List Jan. 12, 1875........dis 25 %
" " " Brass, " "........dis 15 %
" Round Head, Iron, " "........dis 20 %
" " " Brass, " "........dis 10 %
English, Flat Head, Iron ; American List, Sept. 1, 1875
Nettlefold & Chamberlain's........dis 30&5 %
Birmingham Sc'w Co........dis 30&5 %
Birmingham Screw Co., Brass........dis 30&10 %
Bench—Iron........dis 60, 10&10 %
" —Wood, Beach........⅌ doz $3·00 net
" " Hickory........dis 30&10 %
Hand........dis 25&10 %
Jack—Bell Bottom........dis 15 %

Scythes.
Blood's German Steel, Grass....⅌ doz $10 00 }
" Cast " "....⅌ doz 11 00 }
" Silver " "....⅌ doz 12 00 }
" German " Grain....⅌ doz 14 00 } dis $1·50 from list
" Cast " "....⅌ doz 15 00 }
" Excelsior and Granger. ⅌ doz 11 00 }
" Young America........10 50 }
" Silver Clipper........13 00 }
Scythe Snaths........dis 20 %

Sieves.—Mann's Patent........New list net
14 16 18 20 24 30 mesh
Iron...$3·00 3·00 3·25 3·50 3·75 4·75 ⅌ doz
Plated. 3·50 3·75 4·00 4·25 4·50 6·00 "
Wood Rims........18 mesh, $1·50 per doz, dis 10 %

Shears and Scissors.
Cast Steel........dis 75&10 %
Cast Iron........New list July 15........dis 30 %
Heinisch Sons' Trimmers and Scissors........dis 65 %
" " Standard quality Shears and Trimmers........dis 40 %
Seymour's Straight Trimmers........dis 60&10 %
" Scissors........dis 50 %
Pruning........per doz $10 00—dis 35 %
Barnard's Lamp Trimmers........per doz $3·75

Sheaves.
Sliding Door, M. W. & Co. list........dis 40&5&2 %
" R. & E. list........dis 50&5&2 %
" Patent Roller........dis 25 %
" " " Hatfield's........dis 50 %
" Russell's Anti-Friction........dis 50&2 %
Sliding Shutter, R. & E. List........dis 50&5&2 %

Shovels and Spades.
Ames........dis 20 %
Birmingham Shovel Co........dis 15 %
Rowland's........dis 25 %
Old Colony........new list dis 10&5 %
Middleboro' Shovel Co........new list dis 30 %
C. E. Jennings........New list dis 30&10 %
Dunning's Shovels and Scoops........dis 20&7½ %

Shovels and Tongs.
Iron and Brass Head, R. & E. list........dis 50&10&2 %
" " Hart's........dis 55&2&10 %
Polished Steel........dis 50&10&2 %

Skates.
Barney & Berry's
N. Y. Club ℘ pair $2·75 }
B. & B. Club 3·50 } dis 25 %
All Clamp " 4·25 }
Rink " 8·00 }
Florence Steel $1·00 dis 25 %
" Spring 3·00 dis 30 %
" All Clamp 3·50 dis 30 %
Peck & Snyder's—
No. 1, Blued per pair $3·00 }
No. 2, Nickel Plated per pair 6·00 }
No. 3, " " extra per pair 8·00 }
Clipper Club Blued per pair 3·50 } dis...25 %
" " Full Pol'd per pair 4·50 }
" " " and Nickel Plated per pair 6·00 }
Acme Club Skates.—Nos. 5 7 10 12 14
Pair $4·00 5·00 7·00 7·50 8·00 dis 20 %

Slates.
Square Frames, Round Cornered, by case dis 65&10 %
Less than a case dis 65 %

Spoke Shaves.
Iron dis 33⅓&10 %
Wood dis 30 %
Bailey's dis 20&10 %

Spoons.
Tinned Iron dis 10 %
By the case dis 20 %
Basting dis 10 %
Britannia dis 50&5 @ 55 %
" Boardman's, new list dis 55 %
Rogers & Bro., A 1 dis 50 %
Derby Silver Co. dis 50 & 5 %
Holmes, Booth & Haydens dis 50 %
Nickel Silver Co. dis 40 %
German Silver dis 30 @ 33⅓ %
Tin (P. S. & W.)—
Teas $1·50 ℘ gross, net
Tables 2·75 " net

Stocks and Dies dis 5&10 %

Stone.
Hindostan Stone ℘ ℔ 6c }
" Axe Stone ℘ ℔ 8c } dis 20&10 %
" Slips ℘ ℔ 10c }
Sand Stone ℘ ℔ 6c—dis 20&10 %
Washita Stone No. 1, ℘ ℔ 30c net
" No. 2, ℘ ℔ 25c net
" Slips No. 1, ℘ ℔ 60c net
Arkansas Stone No. 1, ℘ ℔ $1·35 net
" Slips No. 1, ℘ ℔ $2·50 net
Grindstones, Family, J. F. Green & Bro. dis 20 %

Stove Polish.
Joseph Dixon's ℘ gross, 6 00
Gem ℘ gross $4·25 @ 4·50 net
Gold Medal ℘ gross $6 00 dis 25 %

Squares.
Steel dis 50 %; full cases, dis 50&10 %
Iron dis 50 %; full cases, dis 50&10 %
Nickel Plated add $2 50 @ $4 00 ℘ doz net
Try Squares and T Bevels dis 45&10 %
Star Try Squares and Bevels dis 30 %
Disston's Try Squares No. 1 dis 20 %
" " No. 2 dis 40 %
" " Improved dis 20 %

Tacks.
Full Weight American Iron dis 45&7½ %
Half Weight American Iron dis 72½&7½ %
Carpet dis 7½ %
Brads American Half Weight dis 50&7½ %
Finishing Nails ⅜ ⅝ ¾ 1 1¼ in. and over
℘ ℔ 25c 20c 18c 14c 12c dis 7½ %
Trunk and Clout ⅜ ⅝ ¾ 1 1¼ in. and over
℘ ℔ 25c 20c 18c 14c 12c dis 7½ %
Copper Tacks ℘ ℔ 50c—dis 7½ %
Iron Shoe Nails, ℘ ℔ 4-8 and longer, 9½c; 3½-8, 10c dis 7½ %
Double Pointed dis 33⅓&10 %

Tapes, Measuring.
American Flask and Cap Co. dis 20 %
Eddy's dis 20 %

Tea Trays.
American Tea Tray Co. dis 15 %

Thermometers.
Tin Case dis 50&10 %

Toe Calks.
Winsted ℘ ℔ 13c., dis 10&10 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion) dis 20 %
Wood Bottom per doz $12—dis 25&10 %
All Iron per doz $19 50—dis 25&10 %

Tinners' Tools and Machines.
P. S. & W. list net

Traps.
Game, Newhouse dis 25 %
" Peck, Stow & Wilcox dis 30 %
" Hotchkiss old list dis 30 %; new list dis 10 %
" Blake's Patent dis 30 %
Mouse, Wood Choker ℘ doz holes. 15 @ 16c
" Patent Chocker (Union Nut Co.) ℘ doz holes 16 @ 18c net
" Round, Wire ℘ doz $1 50 to 2 00 net
" Square, " ℘ doz 2 00 to 2 50 net
Cage, " ℘ doz 2 50, dis 10 %

Trowels.
Lothrop's Brick and Plastering dis 10 %
Disston's Brick and Plastering dis 12½ %
Rose's Brick dis 5 %
Brades' Brick gold. dis 10 %
Worrall's Brick and Plastering dis 20 %
Garden dis 25 %

Triers.
Butter and Cheese dis 25 %

Ventilators (Window).
Nickel and Gilt per dozen $16·00 @ 18·00

Vises.
Trenton Vises, Solid Box.
40 to 160 lbs. 16c
160 and over 20c
Peter Wright's ℘ ℔ 15½c. gold
Wilson's Solid Box dis 15 @ 20 %
31 to 160 lbs. 18c
160 and upward 22c
Wilson's Parallel dis 30 %
Sargent's " dis 50&10&10 %
Backus & Union, Parallel dis 25 %
Buffalo, Parallel new list dis 25 %
Fisher & Norris' Double Screw Parallel dis 15&10 %
Trenton Parallel dis 15 %
Merrill's Parallel dis 15 %
Parker's dis 20 %
Stephens' Parallel dis 15 @ 20 %
Bonney's Saw Filers per doz $20—dis 20 %
Stearn's Saw Filers per doz $20—dis 20 %

Wheel Barrows.
Canal (Pugsley & Chapman) new list dis 15 %
Coal, Garden and Stone (Pugsley & Chapman) dis 25 %

Well Wheels.
Revised list dis 60&10 %

Wire.
Brass and Copper dis 10 %
Bright and Annealed Nos. 0 @ 18 dis 40 @ 45 %
" " " 19 @ 26 dis 47½ @ 52½ %
" " " 27 @ 36 dis 52½ @ 57½ %
Coppered " 0 @ 18 dis 35 @ 40 %
Galvanized, Nos. 0 to 9 ℘ ℔ 8½ @ 9c net
Galvanized, Nos. 10 to 18 market list dis 10 @ 15 %
Tinned dis 25 @ 30 %
Cast Steel dis 15 @ 20 %
Tinned Broom Wire dis 30 @ 35 %
Galvanized Telegraph, Nos. 8 and 9 ℘ ℔ 9c @ 9½c
Galvanized Telegraph, Nos. 10 and 11 ℘ ℔ 10c @ 10½c
" " " 12 ℘ ℔ 10½c @ 11c
Annealed Fence, Nos. 8 and 9 dis 40 @ 45 %
" Grape, " 10 to 14 dis 40 @ 45 %
Fence Staples ℘ ℔ 8 @ 8¾
Stubs' Steel Wire $7 00 to £ gold
Judd's Picture Wire dis 50
Clothes Line Wire per coil 60c. net

Wrenches.
American Adjustable dis 45 %
Baxter's Adjustable "S" dis 20 %
" Diagonal dis 20 %
Collins & Co.'s dis 45 %
Coes' Genuine dis 40&5 %
" Pattern (Wrought) dis 50&10 %
" " (Malleable) dis 65&10 %
Lindsay's Patent dis 25 %
Taft's Pattern dis 70&10 %
Davis Patent Duplex new list dis 25 %
Bemis & Call's Patent Combination dis 20&5 %
" " Merrick's Pattern dis 25&2½ %
" " Brigg's Patent dis 15&10 %
Aiken's Pocket (Bright) per doz $10·00—dis 50&10 %

Wringers.

		Less than 2 doz	2 doz lots
Providence	℘ doz	$72·00	$70·00
Reliance	℘ doz	69·00	67·00
Universal—Extra	℘ doz	72·00	70·00
Novelty	℘ doz	72·00	70·00
Sherman	℘ doz	72·00	70·00
Wringers without Cog Wheel	℘ doz	58·00	60·00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE, dis 10 %.

COMMON STAMPED WARE, &C.

Bucket Covers.
Quarts ½ 1 2 3 4
Inch 4¾ 5 3-16 6 5-16 6¾ 7 11-16
Per gross $2·00 2·00 3·40 4·25 5·75
Quarts 6 8 10 12
Inch 8⅜ 9½ 9¾ 10 9-16
Per gross $6·50 8·00 8·50 11·50

Cake Box Covers. Small. Medium. Large.
Inch 11⅛ 12⅛ 13⅛
Per gross $15·00 18·00 22·00

Pot Covers.
Inch 7⅛ 8⅛ 8⅝ 9⅛ 9⅝ 10⅛
Per gross $5·75 6·00 6·25 6·75 7·25 8·25
Inch 10⅝ 11⅛ 11⅝ 12⅛ 12⅝ 13⅛
Per gross $8·75 9·50 10·00 13·00 13·75 16·50

Pie, Dinner or Scolloped Plates.
Inch 6 7 8 9 10 11
Per gross $4·00 4·50 5·50 5·90 8·50 10·50

Deep Pie Plates.
Inch 9 10
Per gross $8·50 10·50

Jelly Cake Pans.
Inch 9 10
Per gross $7·50 10·00

Coffee Pot Covers.
Plain 1½ 2 3 4 5 6 qts.
Inch 3 3⅜ 3⅞ 4½ 5
Per gross $1·15 1·40 1·60 2·00 2·75 3·00
Rimmed 2⅞ 3 3½ 4 4½ inches.
Per gross $2·25 2·50 3·00 3·50 4·00

T. K. Breasts only.
Inch 7½ 8 8½ 9 9½ 10 10½ 11½
Per gro. $6·00 6·50 6·75 7·25 7·75 9·50 10·00 12·00 13·00

Grater Plates.
Sheet ½ ¾ 1
Per gross $3·00 6·00 11·50

Scolloped Cake Pans. Small. Large.
Without Tubes per gross, $8·00 11·50
With Tubes " 10·50 14·00

Stamped Square Pans.
No ½
Per gross $7·50 14·50

Common Square Pans (One Sheet).
Per gross $11·50

Milk Skimmers (Plain or Pierced).
Per gross $4·00

Lettered Plates
Inch 5½ 6
Per gross $3·25 4·00

Steamer Bottoms.
Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.
Inch 4 4½ 5 5½ 6 7
Plain per gro. $4·00 4·50 5·00 5·50 6·00 7·00
Jap'd or Burn'd " 6·00 6·50 7·00 8·00 8·50 10·00

Coffee Boiler Lips. Small. Large.
To Rivet per gross, $0·80 1·10
To Solder " 1·25

STAMPED DEEP AND RETINNNED WARE, Discount 20&10 %.

Plain Stamped Water Dippers.
½ pint. Pint. Quart. quarts. 2½ quarts.
Per doz ·90 1·15 1·50 1·85 2·50

Retinned Milk Pans.
Qts. ½ 1 1½ 2 3 4 5 6 8 10 12
℘ doz. 1·20 1·50 1·75 2·00 2·25 3·15 3·50 3·85 4·75 5·25 5·75
Dipper Bowls, Plain Stamped—
Pints ½ 1 Quarts 1 2 2½
Per doz. ·50 ·75 Per doz. 1·00 1·25 1·75
Dipper Bowls Retinned—
Pints ½ ¾ 1 Quarts 1 2 2½
Per doz. ·75 ·93 1·05 Per doz. 1·40 1·75 2·25

Pans.
Dish Pans, Retinned Deep—
Quarts 7 8 10 14 17 21 30
Per doz. 8·50 9·50 11·00 13·00 16·00 19·00 30·00

JAPANNED TIN WARE, dis 5 %.
Cannisters, Common Pound ½ 1 2 3
Per gross $10·50 15·00 24·00 30·00
Canisters, Hinged Pound 1 1½ 2 3 4
Per gross $19·00 25·00 32·00 37·00 42·00
Canisters, Square Pound 2 4 6 8 12 16
Per doz $3·00 4·25 5·00 5·75 8·00 9·00
Candlesticks, Japanned No. 1 2
Per gross $8·00 7·00
Cake Boxes, Round per nest, $3·25
" Square per nest, 4·25
Chamber Pails, Japanned
Nos. 2 3 4 5
Green, per doz. $8·00 9·00 11·00 13·00
Oak " $9·00 11·00 12·00 13·50
Dust Pans, Corrugated per gross, $22·00
Box Graters per gross, $3·75
Molasses Cups Pint ½ 1 2 4
Per gross $13·00 16·00 28 00 42·00
Lunch Boxes, per doz. 7 in $2·00; 8 in. $2 50
Pepper Boxes Japanned ℘ gross small, $3·00; large, $4·00
Toy Banks, House No. 1 2
Per gross $7·00 5·50
Toy Banks, Gothic No. 1, $6·00, No. 2, 4·00 per gross
Toy Cups, Straight No. 1 2 3
Per gross $3·75 3·25 2·75
Toy Cups, Flaring No. 1, $4·25; 2, $3·75 ℘ gross
Toy Pails, Covered No. 1, per gross $4·00
Toy Rattles per gross, $2·00
Trunks, Wire Handled per nest (5) $1·75
Spittoons, Tin per gross, $27

PLANISHED TIN WARE, dis 20 %
Tea Pot Handles—P. S. & W. dis 20 %
Stow's Patent Hollow Tea Pot Handles.
No. 1, Small 4½ inches per gross, $11·50
No. 2, Medium, 5½ " " 12·50
No. 3, Large, 6½ " " 13·50
No. 4, Ex. Large 7½ in., for Wash Pitchers &c. " 18·00
Solid Iron, Tin Tipped.
No. 10, Small, 4½ inches per gross, $9·00
No. 15, Medium, 5½ " " 9·50
No. 20, Large, 6½ " " 10·75
Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.
No. 12, Bronzed and Tin-Tipped per gross, $13·50
Saucepan Handles, Of Best Malleable Iron. P. S. & W. dis 20 %
Japanned.
No. 1, 5½ inches long per gross, $3·50
No. 2, 6 " " 3·75
No. 3, 6½ " " 4·00
No. 4, 7½ " " 4·25
No. 5, 8 " " 4·50
No. 6, 9 " " 4·75
Tinned.
No. 1, 5½ inches long per gross, $4·25
No. 2, 6 " " 4·50
No. 3, 6½ " " 4·75
No. 4, 7½ " " 5·25
No. 5, 8 " " 5·50
No. 6, 9 " " 5·75
Japanned per lb., ·16
Tinned " ·20
Iron Kettle Ears (P., S. & W.) dis 45 %
Half gross pairs in a package.
Tinned
Nos. 1 2 3 4 5 6 7
Per gross pairs 88c $1·00 1·50 1·75 2·10 2·75 3·75 4·50
Black.
Nos. 1 2 3 4 5 6 7 8
Per gross pairs 75c 88c $1·35 1·50 1·75 2·25 2·75 4·00
Tinned Tea Kettle Ears.
Nos. 4 5 6
Per gross pairs $1·75 2·10 2·75
Extra Heavy Tinned Kettle Ears—French Pattern.
Nos. 1 2 3 4 5 6 7
Per gross pairs $1·00 1·25 1·50 1·75 2·00 2·50 3·00
Malleable Iron Kettle Ears for Coal Hods &c.
P., S. & W. dis 20 %
No. 10 Small ℘ ℔. Tinned 21c; black, 16c
No. 20 Medium ℘ ℔, " 20c; " 16c
No. 30 Large ℘ ℔, " 20c; " 16c
No. 40 Extra Large ℘ ℔, " 20c; " 16c
In cases of 100 lbs. each.
Milk Can or Boiler Handles—(P. S. & W.) 4½ in. dis 25 %
Plain, 8c.; Japn'd, 9c.; Tinned, 15c. per lb.; Malleable Clips or Ears to match, Tinned 30c per lb.
Toilet Ware Handles—4½ inches (P. S. & W.) dis 35 %
Plain with drilled holes, per lb. 9c
Plain with Cast " 8c
Plumbers' Scrapers—(P. S. & W) dis 25 %
Extra quality, length 6 in., per doz. $4·00

METALS.

IRON.—DUTY Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1⅞ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1 ℘ ton, $25 00 @ 25 50
Foundry No. 2 " 23 00 @
Gray Forge " 20 00 @ 22 00
SCOTCH.
Coltness " 28 50
Glengarnock "
Gartsherrie "
Eglinton " 29 50

Bar Iron.
Am. Refined, at mill 2·6c. @ 2·8c

Rails.
American, at works, currency " 45 00 @ 50 00
Old Rails 25 00 @ 26 00

Scrap.
Wrought Scrap " 30 00 @ 32 50

Bar Iron from Store.
Common Iron.
¾ to 2 in. round and square } ℘ ton $57 50
1 to 6 in. x ⅜ to 1 in. }
Refined Iron.
⅜ to 2 in. round and square } " 60 00
1 to 6 in. x ⅜ to 1 in. }
1 to 6 in. x ¼ and 5-16 " 65 00
Shafting Iron—2½ to 4 in. " 67 50 @ 77 50
Rods—3-16 to ⅝ round and square " 62 50
Bands " 75 00
Hoops—⅝ to 3 in. " 82 50 @ 132 50
Swedish Iron.
Ordinary sizes " 132 50 @ 135 00
Plow size "

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
os 10 to 20 ℘ ℔	4c	5c	5½c
21 to 24 "	4¼c	5¼c	5½c
25 to 26 "	4½c	5½c	5¾c
27	4¾c	5¾c	6c
28 "	5c	6c	6¼c

Galvanized, 14 to 20, prime, ℘ ℔ 8½c; 2d quality ℘ ℔ 7½c
" 21 to 24 " " 9¼c " " 8½c
" 25 to 26 " " 10 c " " 9 c
" 27 " " 10½c " " 9½c
" 28 " " 11½c " " 10½c
Patent Polished ℘ ℔ 14c
Russia, Nos. 8 to 16 " 15½c
" Stained, No. 1 " 14½c
Belgian 10c
One piece Corrugated Sheet Iron Elbows.
CHARCOAL IRON.
4½ 5 5½ 6 7 inch.
$2·50 3·50 4·50 5·25 6·50 per doz.
RUSSIA IRON.
4½ 5 5½ 6 7 inch.
$5·00 7·00 9·50 12·00 14·00 per doz.

COPPER—DUTY: Pig, Bar and Ingot, 5c.; old copper, 4 cents ℘ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem.
American Ingot ℘ ℔ 23½ @ 28½c
English
BRAZIERS COPPER, BOLTS, &C.
Braziers' ordinary sizes, over 16 oz., per square 31c. ℘ ℔
Braziers' C[illegible], ordinary sizes, 16 oz. and over 12 oz., per square foot 33c. "
Braziers' Copper, 12 oz. per square foot 35c. "
Circles less than 84 inch in diameter 34c ℘ ℔
Circles, 84 inch diameter and over 37c. "
Segment and Pattern Sheets 34c. "
Locomotive Fire Box Sheets 31c. ℘ ℔
Sheathing Copper, over 12 oz. per sq. ft. 30c. "
" " 12 oz. ℘ sq. ft. and lighter 35c. "
Bolt Copper 31c. "
Copper Bottoms, 38c. ℘ ℔ net
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.

O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier 37c. By the case, 36c. ℘ ℔
12 oz. and lighter 40c. " " 39c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier 39c. By the case, 38c ℘ ℔
(And all sizes not over 20 inches wide.)
30x60
14 and 16 oz. and heavier 41c. ℘ ℔
12 oz. 44c. "
TINNING.
14x48, by the case 8c. ℘ sheet
14x48, less than case 10c. "
Other sizes not larger than 30x60 2½c. ℘ sq.
Larger than 30x60 5c. "

Brass.
ROLLED AND IN SHEETS.
For the purchase of 100 pounds and over at one time
HIGH BRASS.
All Nos. to No. 8, and widths 14 in. and under 30c
All Nos. to No. 8, inclusive, and widths over 14 to 0 in. inclusive 33c
Over 0 in. to 30 in. inclusive 36c
½c ℘ ℔ advance on each No. above No. 28 to 38, inclusive.
All Brass thinner than No. 38 is Platers' Brass at 49c
Sheets 4x48 in., and all sheets cut to particular sizes and lengths 36c
Printers' Rules 40c
Sheets wider than 30 in. and under 40 in. 40c
" 40 in. and over 42c
Circular sheets in diam. from 4 in. to 14 inclusive 40c
" " " over 14 in. to 0 " 43c
" " " " 0 in. to 30 " 46c
" " " " 30 in. to 40 " 49c
" " " 40 in. 52c
LOW BRASS.
1c ℘ ℔ more than High Brass.
Gilding Metals, 7c ℘ ℔ more than High Brass.
Platers' or Gold Metal { In Bars 42c
{ Sawed 45c
FOR SLITTING: Metal in Width.
in. to ½ in., to No. 30, inclusive, 1c ℘ ℔ advance.
in. to 1 in., thinner than No. 30, c ℘ ℔ advance.
in. to ½ in., " " 30, 3c " "
½ in. and less to No. 30, c ℘ ℔ advance.
½ in. and less thinner than No. 30, 5c ℘ ℔ advance.

BRASS AND COPPER WIRE
(Stub's Wire Gauge).

	High Brass.	Low Brass.	Gild'g and Cop'r
Nos. 0 to 20	33	37	43
Nos. 21, 22, 23	34	38	44
Nos. 24 and 25	35	39	45

Brass Rods, No. 8 and larger, 39c ℘ ℔, less 10 per cent.
Wire straightened and cut, smaller than No. 8, special rates, not less than 6c ℘ ℔ advance.

FINE WIRE—NET PRICES.

	High Brass.	Low Brass.	Gild'g and Cop'r
No. 6	0·41	0·45	0·51
No. 7	0·44	0·48	0·54
No. 8	0·46	0·50	0·56
No. 9	0·48	0·52	0·58
No. 30	0·50	0·54	0·62
No. 31	0·52	0·56	0·66
No. 32	0·56	0·60	0·71
No. 33	0·60	0·64	0·81
No. 34	0·64	0·68	0·91
No. 35	0·69	0·73	1·08
No. 36	0·78	0·82	1·15
No. 37	0·98	0·98	1·28
No. 38	1·28	1·28	1·78

Ten cents per pound extra for Spooling.

MISCELLANEOUS.
Common Plain Brass Pail Ears 39c net
Hose Pipes, 500 and over 79c net
" under 500 84c net
Door Rail 44c—dis 10 %

TUBING
(Brown & Sharpe's Gauge.)
℘ ℔
Plain to No. 20, inclusive $0·48
Nos. 21, 22, 23, 2c. advance on List for each No.
Nos. 24, 25, 26, 4c. " " "
Above No. 26 special rates.
Plain Tube, 1-4 inch 64
" 3-16 " 1 49
" 1-8 " 1 74
All Mandrel-Drawn Tubes 5c. advance on List.
Fancy Tubing 4c. advance on List above Plain.
English, Scotch, and Extra Patterns Fancy Tubing to No. 20 57
Tubing sawed or cut 2 to 4 ft. long, 2c. advance on List.
Add to two cents a half-cent for each additional cutting under two feet.
Discount on the foregoing list, 10 per cent.

LEAD—DUTY: Pig $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb.
Spanish 7c gold
German Refined 6⅝c gold
English 6¾ @ 7c gold
American 6 @ 6½c gold
Bar dis 10 % 8¾c.
Pipe dis 10 % 9½c.
Tin Lined Pipe dis 10 % 16½c.
Sheet dis 10 % 9½c.
Shot dis 10 %. Drop, 9¾c. Buck, 10¾c.
BABBITT METAL.
N. P. U. ℘ ℔ 8½ @ 9c
A., 25c.; B, 20c.; C, 15c.; D, 12c. ℘ ℔.

SOLDER No. 1, 14c.; No. 2, 18c

STEEL.—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb. over 11, 3½ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as

American Cast Steel.
Tool 15 @ 16c
Spring 10c
Homogeneous 12½c
Tire 12½ @ 13½c
Machinery (round and square) 10 @ 11c
File 11c
Sheet 14 @ 16c
Saw Plate, mill and mulay 14 @ 16½c
Saw Plate, gang and X cut 13 @ 14c
" circular as to size 18 @ 30c

Chrome Steel.
Tool ℘ ℔ 20 @ 21c
Tool, extra fine " 40 @ 75c
Spring ℘ ℔ 12c and upward
Machinery ℘ ℔ 14c
Hammer " 15c,
Gun or Homogeneous " 16c

English Steel.—payable in gold, net.
" Best Cast ℘ ℔ 17½c
" Extra Cast " 18½c
" Round Machinery, Cast ℘ ℔ 10½ @ 11½c
" Swaged, Cast 19½c
" Best Double Shear " 17½c
" Blister, 1st quality " 14½c
" " 2d quality " 13 c
German Steel, Best " 11½c
do 2d quality " 10½c
3d quality " 9½c
Sheet Cast Steel, 1st quality " 17½c
" " 2d quality " 14½c
" " 3d quality " 12½c
File Steel, Flat and ½ Round " 12½c
" Square and Round " 12½c
" Mill 13½c
Taper to 4 inch " 16c
" Taper 3 and 3½ inch " 18c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.
Silesian, cash 6¾ @ 7c., gold
American " 7½ @ 11c., currency

TIN—DUTY: Plates, Sheets, Tagger and Terne, 1·1c per lb.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.
Banca ℘ ℔ 24c., gold
Straits ℘ ℔ 20 @ 20½c., gold
English ℘ ℔ 20 @ 20½c., gold
TIN PLATES, CURRENCY PRICES.
I C 10x14, Prime Charcoal 9 @ 9·50
12x12, " 9·50 @ 10·00
14x20, " 9·75 @ 10·25
I X 10x14, " 11·25 @ 11·75
12x12, " 11·75 @ 12·25
14x20, " 12·25 @ 12·75
D C 12½x17 " 8·50 @ 9·00
D X 12½x17 " 10·75 @ 11·25
For each additional X add 2·25
COKE TIN PLATE.

	Best.	2d Quality.	Ordinary.
I C 10x14	$ 8·75 @ 9·00	8·25 @ 8·50	7·50 @ 8·25
I C 12x12	9·25 @ 9·50	8·50 @ 8·75	
I C 14x20	9·25 @ 9·50	8·50 @ 8·75	7·50 @ 8·00

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$ 8·25 @ 8·50	8·00 @ 8·25	7·50 @ 8·00
I X 14x20	10·75		
I C 20x28	17·75 @ 18·00	16·25 @ 17·00	16·25
I X 20x28	23·00		
I C 20x20	22.50		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ℘ ℔.
Sheet cask 10½c
" open 10½c

Old Metals.

(Dealers' Selling Price.)

Copper		@ 20
Yellow metal	14	@ 15
Brass	13	@ 14
Heavy Composition	17	@ 18
Old lead, solid	6	@ 6¼
Tea lead		5
Wrought iron	1½	@
Sheet iron	0¾	@ 0¾
Cast iron		¾
Machinery iron	1¼	@ 1
Zinc	5	@ 5¼
Pewter, No. 1	17	
" No. 2	10	@ 12
Spelter	5	@

Paints, Oils, etc.

Paints.
Black, lamp—Coach Painters ℘ ℔ 20c
" " Ordinary 6c
" Ivory Drop, fair 15c
" " best 26c
Black Paint, in oil kegs, 8c.; ass't'd cans, 11 c
Blue, Prussian, fair to best 50 @ 75c
" " " " in oil 35 @ 65c
" Chinese, dry 83c
" Ultamarine 25 @ 80c
Brown, Spanish 1½c
" Van Dyke 9c
Carmine, 40 $12 00
Green, Chrome 15 @ 23c
" " in oil 18 @ 25c
" Paris good, 30c; best, 40c
" " in oil " 30c " 45c
Mineral Paints 1½ @ 4c
Orange Mineral 11c
Red Lead, American 9½c
" " English 10½c
" Venetian (N. C.) dry 2¾c
" " in oil ass't'd cans, 11c; kegs, 8½c
" Indian, dry 10c
Rose Pink 12c
Sienna American, Raw 4c
" Burnt 4½c
" " in oil 16 @ 22c
" Raw " 15 @ 22c
Umber, Burnt 4 @ 8c
" " in oil 16 @ 21c
" Raw 3½ @ 7½c
" " in oil 16 @ 22c
Vermillion, Chinese
" English 1 25, gold
" Trieste 1 10 "
" American, Common 23c
White Lead, American, pure dry 10c
" " " in oil 11c
White, Paris, English, prime in bbls. 2¼ @ 2½c
Yellow Ochre, French 2½ @ 2¾c
" " " in oil ass't'd cans, 11c; kegs, 8½c
" " Vermont in casks 1½c
Yellow Chrome 17 @ 27c
" " in oil 18 @ 28c
Zinc White, American No. 1 dry 9c
" " 1, in oil 11c
" French (Paris) 11c
" " in oil 12c

Oils.
Linseed Raw ℘ gal. casks, 60c. bbl., 61c
" Boiled " 65c. " 66c
Whale, Crude "
" Bleached Winter " 75c
Sperm, Crude bbl. 1·65
" Winter unbleached " 1·90
" " Bleached " 2 00
Seal, Extra Refined "
Lard, Pure Winter " 1·30
" Spring " 1·20
Cotton Seed, Crude " 60c
" Southern Yellow " 65c
" White "
Neatsfoot, Winter 70c @ $1·10
Natural Lubricating 38c @ 40c

Sundries.
Asphaltum 9c
Benzine ℘ gal. 16c
Chalk 1½c
" Block
Dryer, Patent, Am'n ass't cans, 10½c.; kegs, 9c
" " English " 11c.; " 9c
Flocks
Frostings 50c
Glue, White 38 @ 47c
" Sheet 20c
Glaziers' Points, Zinc 9c
Gum, Copal 35c
" Damar 28c
" Shellac, English 75c
" " " dark 65c
Litharge 10c
Pumice Stone, selected Lumps 4 @ 6c
" " powdered 4c
Putty in bladders 3½c
" in bulk 3c
Rotton Stone, soft, English 8c
Spirits Turpentine 36c
Whiting, Spanish ¾c

Steel.

THREE 1st. CLASS PRIZE MEDALS, CLASSES 1, 21, 22, Great Exhibition of Industry LONDON, 1851.

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

1st CLASS PRIZE MEDAL, CLASS 1A UNIVERSAL EXHIBITION OF INDUSTRY PARIS, 1855.

COCKER BROTHERS,

(Limited.)

SUCCESSORS TO

SAML COCKER & SON,

(Established 1752.)

SHEFFIELD, ENGLAND.

MANUFACTURERS OF

CAST, [illegible], SHEET, AND BLISTER STEEL, OF EVERY DESCRIPTION.
BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES;
Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS,
HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS,
FISH HOOKS, NEEDLES. &c.

ALSO

GENERAL MERCHANTS.

WM. JESSOP & SONS,

MANUFACTURERS OF

STEEL,

AND IMPORTERS OF IRON

SHEFFIELD, ENGLAND.

PRINCIPAL DEPOTS:

NEW YORK, Nos. 91 and 93 John Street.....BOSTON, No. 141 Federal.
ST. LOUIS, No. 714 North Second Street.

AGENCIES

PHILADELPHIA, Jas. C. Hand & Co.....PROVIDENCE, Nightingale & Kilton.
CHICAGO, Crerar, Adams & Co.....NEW ORLEANS, Folger & Co.
CINCINNATI, Augustus Wessel.....SAN FRANCISCO, Huntington, Hopkins & Co.

F. W. MOSS,

Successor to **JOSHUA MOSS & GAMBLE BROS.**

FRANKLIN WORKS, WADSLEY BRIDGE WORKS, WALKLEY WORKS, } SHEFFIELD, ENGLAND.

MANUFACTURER AND IMPORTER OF

STEEL AND FILES.

Principal Depots: 80 John St., N. Y., and 512 Commerce St., Phila.

MOSS & GAMBLE **SUPERIOR C. S. "FULL WEIGHT" FILES,**

Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.
Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Tools, warranted not to crack in hardening Taps of any size.
Swede Spring Steel, especially adapted to Locomotive and Railway Car Springs.
English Spring and Plow Plate Steel. Also, manufacturer of

Sheet Cast Steel Shear, German, Round Machinery, Hammer, Fork and Shovel Steel

And GENERAL MERCHANT.

A. M. F. WATSON, General Agent.

WILSON HAWKSWORTH, ELLISON & CO.,

Vienna Universal Exhibition, 1873.

THE MEDAL FOR MERIT

Awarded for Excellence & Perfection in Material & Workmanship.

W. H., E. & CO. have pleasure in announcing the Award of the MEDAL FOR MERIT for their Exhibit of Crucible Cast Steel, Files, Steel Wire, Tools, &c.
This is the ONLY Award to any Exhibitor of STEEL WIRE in the British Section.

Manufacturers of

STEEL,

Steel Wire, &c., AND GENERAL MERCHANTS.

CARLISLE WORKS, - - - SHEFFIELD, ENG.

New York, 72 John Street.
Philadelphia, 505 Commerce Street.
Agencies:
Boston, 21 Oliver Street.
New Orleans, La. 111 Gravier St.

Isaac Jenks & Sons,

MINERVA AND BEAVER WORKS, WOLVERHAMPTON, ENGLAND.

MANUFACTURERS OF

"JENKS" SPRING STEEL, "MINERVA" SWEDES, AND "ANGLO" CAST SPRING STEEL;
"JENKS" TIRE, TOE CORK, SLEIGH SHOE, BLISTER, AND PLOW STEEL;

ALSO,

"BEAVER" PLOW, TIRE, AXE, AND SHEET IRON.

VAN WART & McCOY, Agents, 134 & 136 Duane Street, N. Y.

J. & RILEY CARR,

MANUFACTURERS OF SUPERIOR

STEEL

For Tools, Cutlery, Saws, Files, Augers, Gimblets, &c.; Sheet Cast Steel for SPRINGS AND STAMPING COLD;

ALSO THE CELEBRATED

DOG BRAND FILES,

Unsurpassed, if equaled in quality.

Bailey Lane Works, Sheffield, England.

Warehouse, 82 John St., New York.

Established 1810.

HENRY MOORE, Attorney.

Steel.

SANDERSON BROTHERS & COMPANY,

(LIMITED)

DARNALL WORKS, ATTERCLIFFE FORGE, } SHEFFIELD, ENGLAND.

Sole Manufacturers of the CELEBRATED

CAST STEEL,

Warranted most SUPERIOR and UNSURPASSED for

TOOLS and GRANITE ROCK DRILLS.

A full assortment of this universally approved OLD BRAND of English Steel, and

ARMITAGE'S GENUINE MOUSEHOLE ANVILS,

For Sale by

EDWARD FRITH, 16 Cliff Street, New York.

FRANCIS HOBSON & SON,

97 John Street, NEW YORK,

Sole Manufact'rs of **"CHOICE"** Extra Cast Steel.

Manufacturers of all Descriptions of Steel.

Manufacturers of Every Kind of Steel Wire.

Don Works, Sheffield, England.

JOHN HOGAN, Agent.

S. & C. WARDLOW,

MANUFACTURERS OF THE CELEBRATED

Cast and Double Shear

STEEL,

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table, Carving, Butcher and Shoe Knives, Turning Tools, Dies, Files, Clock or other Springs, Saws and Tools of every variety.

SHEFFIELD, ENGLAND.

Office of S. & C. WARDLOW, 95 John Street, New York.

In calling the attention of consumers of Steel in any of the varieties above enumerated, we would respectfully assure them of our ability to supply an article that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class material in quality, temper, and durability is needed.

G. SANDERSON & CO.,

Manufacturers of all descriptions of

STEEL.

Bailey Street and Broad Lane Steel Works, } SHEFFIELD, ENGLAND.

Particular attention is paid to quality and temper for

Files, Saws, Table and Pocket Cutlery, Augers, Shovels, &c.

ALSO STEEL of superior quality for **Turning Tools, Taps, Dies, Drills,** &c.

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

☞ *Makers of the Celebrated ROCK BORING DRILL STEEL.*

Warehouse, 57 John Street, New York.

JOHN NICHOLSON & SONS,

Established 1849.

STEEL MANUFACTURERS,

Mowbray Steel Works, SHEFFIELD.

NEW YORK OFFICE, - - - - - 88 Chambers Street.

MIDVALE STEEL WORKS.

Works and Office, NICETOWN, PHILADELPHIA, PA.

MANUFACTURERS OF

CRUCIBLE AND OPEN HEARTH STEEL,

Steel Locomotive Tires. Steel Axles of every description.

STEEL FORGINGS UP TO 8000 lbs. IN WEIGHT.

Solid Steel Castings, Hammer Dies, Frogs, Crossings, etc.

BEST TOOL, MACHINERY AND SPRING STEELS.

WM. SELLERS, Pres. CHAS. A. BRINLEY, Supt. MARRIOTT C. SMYTH, Sec. & Treas.

CHROME STEEL COMPANY,

MANUFACTURERS OF

CHROME CAST STEEL,

WARRANTED SUPERIOR TO ANY STEEL IN THE MARKET—EITHER ENGLISH OR AMERICAN—FOR EVERY PURPOSE.

Principal Office & Works, Kent Ave. and Keep St., Brooklyn, E. D., N. Y.

AGENCIES,

Kimbark Bros. & Co., Chicago, Ills.
Huntington, Hopkins & Co., San Francisco and Sacramento, Cal.
M. M. Buck & Co., St. Louis, Mo
Potter & Hoffman, Philadelphia, Pa.
Geo. Dunbar & Co., Boston, Mass.
Wood & Leggat, Hamilton, Ont.

Steel.

Sheffield Steel Works.

(Established in 1848.)

SINGER, NIMICK & CO.

Pittsburgh, Pa.,

Manufacturers of **Extra Quality Tool**

CAST STEEL,

Patent Rolled

SAW PLATES,

All descriptions of **Cast and German**

Spring and Plow Steel

Elliptic and Side Springs, Seat Springs, AXLES, STEEL TIRE, Plow Wings, Shares, Cultivators, Reaper Bars, ow Bars, &c., &c.

Warehouse, 83 Water and 100 First Streets.

MILLER, BARR & PARKIN,

Crescent Steel Works,

PITTSBURGH, PA.

Manufacturers of all descript ot

STEEL

EQUAL TO ANY IN THE MARKET.

Office.....339 Liberty St.

PITTSBURGH, PA.

Gunpowder.

GUNPOWDER

DUPONT'S

Sporting, Shipping, and Mining

POWDER.

DUPONT'S GUNPOWDER MILLS,

ESTABLISHED IN 1801,

Have maintained their great reputation for 75 years. Manufacture the

Celebrated Eagle Ducking, Eagle Rifle, & Diamod Grain Powder.

THE MOST POPULAR POWDER IN USE.

Also, SPORTING, MINING, SHIPPING, AND BLASTING POWDER,

of all kinds and descriptions.

For sale in all parts of the country. Represented by

F. L. KNEELAND

70 Wall Street, NEW YORK.

GUN-POWDER

LAFLIN & RAND POWDER CO.

21 Park Row, New York,

invite the attention of the the Hardware Trade to their facilities for delivering

BLASTING, MINING and RIFLE

POWDER

IN EVERY PART OF THE UNITED STATES from having agencies and magazines at all prominent points, beside our works at

Newburg, Saugerties, Kingston, and Catskill, N. Y.; Scranton, Carbondale and Pottsville, Pa.; Baltimore, Md., and Platteville, Wis.

The superiority is well known of our brands Rifle Powder

Orange Rifle, Orange Ducking Lightning, Audubon.

SAFETY-FUSE at wholesale.

WOODEN TOOTH

Curry Comb.

The Best yet Invented.

CHEAP AND DURABLE.

Is Pleasant to the Horse, and does not injure the Brush.

FULLER BROS., Sole Agents,

89 Chambers & 71 Reade Streets, N. Y.

Steel.

HUSSEY, WELLS & CO.

MANUFACTURERS OF ALL DESCRIPTIONS OF

CAST STEEL,

INCLUDING

Best Refined Steel for Edge Tools.

PARTICULAR ATTENTION PAID TO THE MANUFACTURE OF STEEL FOR

Railroad Supplies, Homogeneous Plates

FOR LOCOMOTIVES, BOILERS AND FIRE BOXES,

Smoke-Stack Steel, Cast Steel Forgings for Crank Pins, Car Axles. &c.

ALSO, MANUFACTURERS OF THE CELEBRATED BRAND

"Hussey, Wells & Co. Cast Spring Steel,"

For Elliptic Springs for Railroad Cars & Locomotives.

PENN AND SEVENTEENTH STS., PITTSBURGH, PA.

BRANCH OFFICES:

30 Gold St., New York. 13 & 15 Custom House St., Boston. 146 E. Lake St., Chicago.

Pittsburgh Steel Works.

ESTABLISHED IN 1845.

ANDERSON & WOODS.

MANUFACTURERS OF

BEST REFINED CAST STEEL,

Cast and German Plow and Spring Steel,

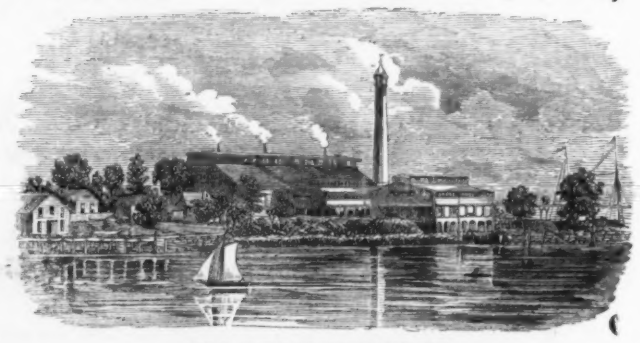
FIRST AVE., AND ROSS ST., PITTSBURGH.

BRANCH HOUSES

LOTHROP & CO., 16 Hamilton St., Boston. A. B. PARKER, 12 Cliff Street, New York.
W. F. POTTS, SON & CO., 1225 Market Street, Philadelphia.

FARIST & WINDSOR,

BRIDGEPORT, CT., 1872.



WINDSOR LOCKS, CT., 1860.

ALL DESCRIPTIONS OF

CAST STEEL

made to order for **Cutlery, Dies, Agricultural Implements. Decarbonized Steel, Frog Plates and Points, Steel Forgings to Pattern.** Quality equal to the best. Prices as low as the market admits.

JOEL FARIST. JOHN B. WINDSOR.

LABELLE STEEL WORKS.

SMITH, SUTTON & CO.,

MANUFACTURERS OF ALL KINDS OF

STEEL.

Also, Springs, Axles Rake Teeth, &c.

OFFICE & WORKS, Ridge, Lighthill & Belmont Sts., & Ohio River, Allegheny.

Post Office Address, Pittsburgh, Pa,

D. G. GAUTIER & CO.,

MANUFACTURERS OF

Hammered and Rolled STEEL of every description

JERSEY CITY, NEW JERSEY.

DUDLEY G. GAUTIER. JOSIAH H. GAUTIER.

JOHN A. GRISWOLD & CO.,

Troy, N. Y.,

Office in New York City, 56 BROADWAY.

MANUFACTURERS OF

Bessemer Railway Steel,

MERCHANT BARS, TIRE AND SHAFTING,

Railroad Iron, Pig Iron, Merchant and Ship Iron,

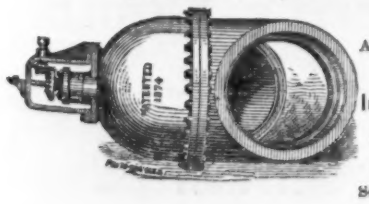
AGENCIES IN BOSTON AND PHILADELPHIA.

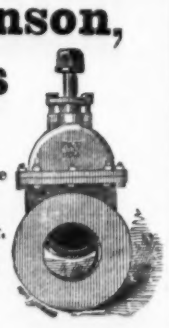
Armstrong & Hutchinson,

Manufacturers of

PATENT STOP GATES

For Water, Gas and Steam,





From 2 in. to 50 in. diameter.

Also, **Fire Hydrants, Single and Double Nozzle.**

Improved Boiler Feeders, Etc.

Cor. Park Way & Sandusky Sts., ALLEGHENY, PA.

Send for Circular.

Hardware.

SPEAR & JACKSON,

THE ORDER OF FRANCIS JOSEPH. VIENNA, 1873, TO JOSEPH B. JACKSON

Sheffield, England.

MANUFACTURERS OF

Saws, Files, Edge Tools & Steel.

THE CROSS OF THE LEGION OF HONOUR. PARIS 1855. TO SAMUEL JACKSON.

JOHN L. FISHER, Agent,

100 Chambers Street, NEW YORK.

JOHN WILSON'S CELEBRATED

CORPORATE TRADE MARK. FOUR PEPPERCORNS AND A DIAMOND.

GRANTED A.D. 1766, BY THE CORPORATION OF CUTLERS OF SHEFFIELD, AND PROTECTED BY ACT OF PARLIAMENT.

BUTCHERS' KNIVES, BUTCHERS' STEELS, AND SHOE KNIVES.

THE TRADE MARK, IN ADDITION TO THE NAME, IS STAMPED UPON EVERY ARTICLE MANUFACTURED BY

JOHN WILSON.

BUYERS ARE SPECIALLY CAUTIONED AGAINST IMITATIONS OF THE MARK, AND THE SUBSTITUTION OF COUNTERFEITS BEARING THE NAME, "WILSON," ONLY.

Works:—SYCAMORE STREET, SHEFFIELD. ESTABLISHED in the Year 1750.

ALFRED FIELD & CO.,

Hardware Commission Merchants,

IMPORTERS AND EXPORTERS.

Principal Offices and Warehouses:

Birmingham, Sheffield & Liverpool, Eng.; New York, U. S.; & Montreal, Canada.

A large line of Birmingham and Sheffield goods in stock at

93 Chambers and 75 Reade Streets, NEW YORK.

HERMANN BOKER & CO.,

OFFICES AND WAREHOUSES:

NEW YORK, 101 and 103 Duane and 91 and 93 Thomas Streets.

REMSCHEID and SOLINGEN (Prussia.) H. BOKER & Co.

SHEFFIELD (England), No. 3 Arundal Lane, Represented by Mr. ARTHUR LEE.

LIEGE (Belgium), Represented by Mr. LOUIS MULLER.

Manufacturers and Importers of **Cutlery, Guns, Hardware** and **Railroad Material.**

Proprietors of **TRENTON VISE AND TOOL WORKS, Trenton, N. J.**—Vises, Picks, Mattocks, Grub Hoes, Sledges, Hammers, Bridge Work, Turn Tables, etc.

Proprietors of the **MANHATTAN CUTLERY CO.,** "O. K." Razors.

Sole Agents for **LAMSON & GOODNOW MFG. CO., Shelburne Falls, Mass.**—Table Cutlery and Butcher Knives.

W. & S. Butcher's Files, Edge Tools and Razors, the largest stock in the United States.

Geo. Wostenholm & Son's Knives, Scissors and Razors, the largest stock in the U. S.

John Wilson's Butcher and Shoe Knives.

Peter Wright's and Armitage Anvils.

We always have on hand a full assortment of

German and English Hardware, Cutlery, Guns, Gun Material, Chains, Heavy Goods.

REED & BARTON,

Manufacturers of **FINE**

Electro-Plated Table Ware

OF EVERY DESCRIPTION,

Would call especial attention to their new

Patent China-Lined

ICE PITCHERS.

These Pitchers are made of the finest quality of white metal, heavily plated with silver. They are finely engraved and chased in a great variety of decorations. The linings are of fine stone china. The top is secured to the body of the Pitcher in such a manner that it can be easily detached and the lining removed for cleaning or other purposes.

Many improvements attained are noticeable in these Pitchers. Water and ice standing in them do not come in contact with any metal whatever. They are perfectly clean, and easily kept so. They are perfectly free from all odor or rust. Lemonade, beer, milk, etc., may be kept cool in and drank from these pitchers without endangering health. There can be nothing cleaner or purer for holding liquids than pure, white china. There is no possibility of leakage.

The construction of the Pitcher is such that the lining can be easily replaced at a very small cost.

Factories, Taunton, Mass.

Salesroom, No. 2 Maiden Lane, New York.

THE CELEBRATED

Yale Locks

FOR ALL USES.

Ornamental Real Bronze Hardware.

YALE LOCK MFG. CO., Stamford, Conn.

Salesroom, No. 298 Broadway, New York.

PAT. DEC 23.73

BLAKEMORES GRAVITY DOOR ALARM

USE NO SPRING

MANUFACTURED 3425 MARKET ST PHILAPA

SEND FOR CIRCULAR

Clark's Patent Noiseless

Pressure Blowers and Exhaust Fans.

R. W. WILD, Agent,

20 Cortlandt St., New York.

Portable and Stationary Engines, Boilers, Grist Mills, etc.

ZERO

REFRIGERATOR.

With Water, Wine and Milk Cooler, is the best Meat, Fish, Fruit, Ice and Health Keeper in the World. 30,000 in use. Call or send for catalogue.

ALEX. M. LESLEY, Manufacturer, 226 West 23d Street, N. Y.

EDWARD BARR,

78 John Street, NEW YORK.

Tubes for Gas, Steam & Water.

¼ to 14 inch. **Gas, Steam Fitters', Plumbers' and Machinists' Supplies.** Boiler Tubes, Iron and Steel Boiler Plates, Rivets, Tools, Etc. Railroad Cars and all kinds of Railway Supplies. Iron and Wood Work for Cars. Bridges and Buildings.

Agent for W. C. ALLISON & SONS.

The Whitmore Engine.

SAFEST, CHEAPEST & BEST.

Lovegrove & Co.,

No. 121 South Fourth Street, PHILADELPHIA, PA.

Sole Manufacturers

Engines, Boilers and Steam Pumps.

Get Binders

FOR THE IRON AGE.

We have made arrangements to furnish Koch's PATENT BINDER, which we think altogether the best before the public, to our subscribers at the following very low rates—about the wholesale prices by the dozen.

Half Cloth ..... **$1·00 each.**
(Cloth Back and Corners, with Morocco Paper Sides—a good, serviceable Binder.)

Full Cloth ..... **150 "**
(Morocco Cloth Back and Sides.)

Half Roan ..... **175 "**
(Roan Back; Cloth Sides.)

Half Morocco ..... **200 "**
(Morocco Back and Corners; Cloth Sides.)

The above are all in black, which is the most serviceable color, with the exception of the Half Morocco, which are put up in a number of handsome shades. The name of the paper is stamped in gold on either side, and each Binder is furnished with loops by which it can be hung up against the wall as newspaper files are usually disposed of.

The Binders will each hold the twenty-six numbers in the form of a bound volume. They can be nicely inserted in two or three minutes by any boy of ordinary intelligence; and when the covers are full they can be either preserved in that shape as bound volumes of *The Iron Age*, or they can be emptied and used again. There is no possibility of their getting out of order, unless the cords, which are very strong, wear out, when anyone can easily replace them with a piece of fishing line or other suitable string. Subscribers who value the paper should order them at once, so as to keep the paper in good order

On receipt of the price we will ship them, safely put up, by any express line or to any New York house to be packed. They are too large to be sent by mail.

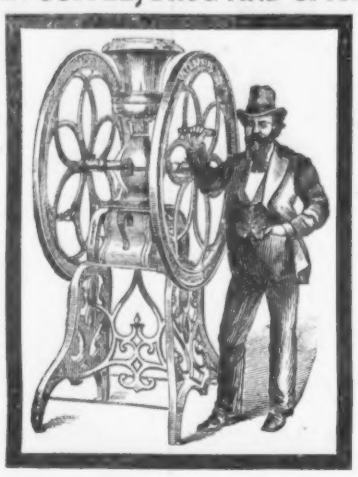
TWO SILVER MEDALS AWARDED

ENTERPRISE MANF'G CO. OF PA.

PHILADELPHIA,

FOR

AMERICAN COFFEE, DRUG AND SPICE MILLS.



Measuring Faucets

BUNG-HOLE BORERS,

TOBACCO CUTTERS

Cheese Cutters,

CORK PRESSERS

Etc., Etc.

GRAHAM & HAINES,

AGENTS,

88 Chambers St.

NEW-YORK.

NO EXTRA CHARGE FOR NICKEL-PLATED HOPPERS WITH EAGLE DOME TOPS.

SEND FOR ILLUSTRATED CATALOGUE.

WHEELING HINGE CO.,

Wheeling, West Va.,

Manufacturers of

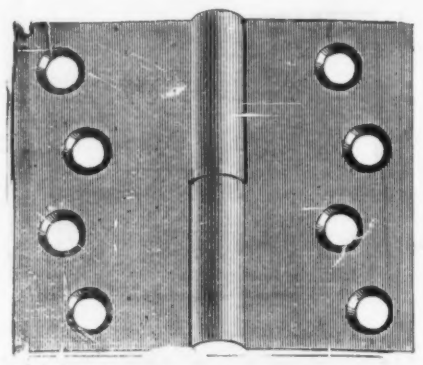
Wrought Butts, Strap & T Hinges, Wrought Hooks, Hasps & Staples, Wrought Repair Links & Washers,

GRAHAM & HAINES, Sole Agents, 88 Chambers Street, N. Y.

AMERICAN BUTT CO.,

PROVIDENCE, R. I., Manufacturers of

Cast Butt Hinges,



AND

BUILDERS'

HARDWARE.

New York Warehouse with

Messrs. GRAHAM & HAINES,

No. 88 Chambers Street.

Send for Price List.

All kinds of

SMALL CASTINGS

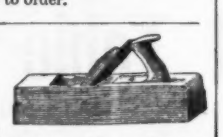
Made to order.

GREENFIELD TOOL CO.,

Greenfield, Mass.

Sole Manufacturers of the Celebrated

"Diamond" PLANE IRONS,



EXTRA PLATED TABLE CUTLERY. PATENT FORGED OX SHOES. The only Shoe made with concavity to fit hoof. BENCH AND MOULDING PLANES of every description, &c., &c. Drop Forgings to order. Address for Catalogue with stamp.

GEORGE T. RICHARDSON. FRANK H. SCUDDER.

Middleboro' Shovel Co.,

MANUFACTURERS OF

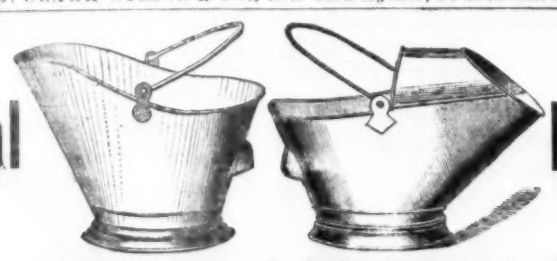
SHOVELS, SCOOPS & SPADES.

Office and Salesroom,

63 OLIVER STREET,

Works Middleboro, Mass. BOSTON.

J. CLARK WILSON & CO., New York Agents, 81 Beekman Street.



Coal Hods.

EXCELSIOR TIN and SHEET IRON WORKS,

Successors to SMITH, BURNS & CO.,

Manufacturers of Plain, Stamped, Galvanized and Japanned

TIN WARE & SHEET IRON GOODS.

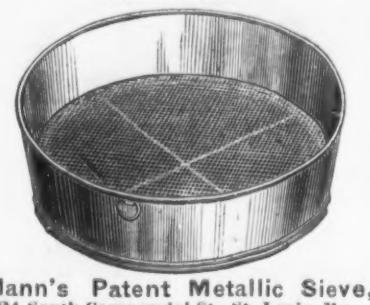
Coal Hods, Fire Shovels, Fry Pans, Water Pails, Well Buckets, &c., &c.

Factory and Warehouse, 47, 49, 51 and 53 South 5th Street, BROOKLYN.

Office and Sample Rooms, 66 Beekman Street, NEW YORK.

R. J. MANN & CO.,

Sole Manufacturers of



Mann's Patent Metallic Sieve,

24 South Commercial St., St. Louis, Mo.

The best sieve in use. To be had of all dealers.

A full assortment of these goods kept in stock at 88 Chambers Street., N. Y.

GRAHAM & HAINES, Sole Agents

SAMUEL LORING'S

PLYMOUTH TACK AND RIVET WORKS

PLYMOUTH, MASS., manufacturer of

TACKS, BRADS, NAILS AND RIVETS.

Swedes and Common Iron Tacks; Leathered, Carpet Brush, Lace and Gimp Tacks; Finishing, Hungarian, 2d, 2d and 3d Fine, Trunk, Clout, and Cigar Box Nails; Black and Tinned Trunk Nails; Zinc, Iron, Copper and Steel Shoe Nails; Brads and Patent Brads; Glaziers' Points &c., &c., &c., COPPER, BRASS AND IRON RIVETS, of all kinds. Coopers' Rivets, from 1d to 6d, in casks of 100 lbs. each. Hose, Belt and Shoe Rivets and Burs. Oval and Countersunk Heads of extra lengths, made to order. SHIP AND BOILER RIVETS OF ALL SIZES AND LENGTHS

COBB & DREW,

Plymouth, Mass.

Manufacturers of Copper, Brass, and Iron Rivets: Common and Swedes Iron, Leathered, Carpet, Lace and Gimp Tacks; Finishing, Hungarian, Trunk Clout and Cigar Box Nails, &c. Rivets made to Order.

NEW YORK AGENCY

Grundy & Kenworthy

HARDWARE.

165 Greenwich Street.

Agent for the Philadelphia Star Carriage and Tire Bolts

FLUTING MACHINES.

The Celebrated K. F. M.

Manufactured for the Trade by

HENRY SOMMER.

8 to 19 Pearl Street, NEWARK, N. J.

Established in 1836.

Shelton Company,

Manufacturers of every variety of

TACKS & SMALL NAILS,

Carriage, Machine, Plow, Stove and Tire Bolts, Coach Screws, Bed Screws, &c.

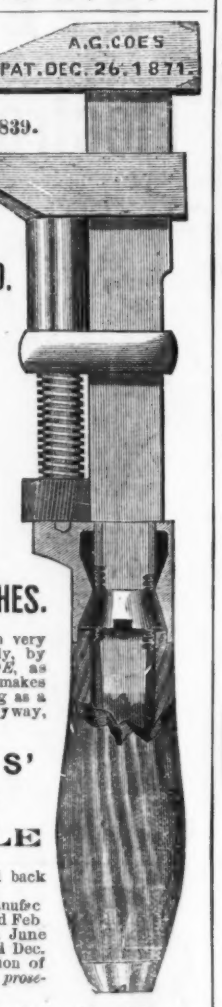
BIRMINGHAM, CONN

Buy the COVERT SNAP

And you will buy no other. It is the most convenient, durable safe and reliable Snap ever used. It has a brass coil spring that is four times as long as any other coil spring snap, and is enclosed in the barrel back of the box, making a stiff up which works freely under all circumstances, and without danger of having its parts broken or disarranged. We manufacture all sizes of Harness Snaps and Round Eye Snaps, and Covert's Patent Thimble to go on rope for Cattle and Horse Ties. Also other goods.

Send for price list and circulars.

HOLD BACK & SNAP CO., Troy, N.Y.



Established in 1839.

A. G. COES & CO.

WORCESTER,

Mass.,

Manufacturers of

THE GENUINE

COES'

SCREW WRENCHES.

Our goods have been very much improved recently, by making the *Bar WIDE*, as shown in the cut, which makes a 12 in. Wrench as strong as a 15 in. made in the ordinary way, and by using

A. G. COES'

NEW PATENT

FERRULE

Which cannot be forced back into the handle.

☞ Our goods are manufactured under Patents dated February 7, 1860, (re-issued June 29, 1871), May 2, 1871, and Dec. 26, 1871, and any violation of either will be *vigorously prosecuted.*

We call particular attention to our new Patent Ferrule, with its Supporting Nut (shown in section in the above cut), which makes the strongest Ferrule fastening known.

A. G. COES & CO.

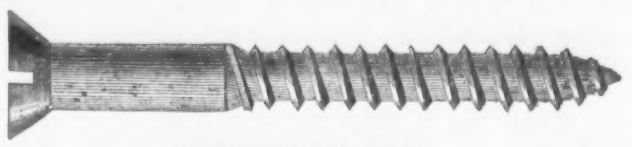
The Hart, Bliven & Mead Mfg. Co.,

18 & 20 Cliff Street, and 243 & 245 Pearl Street, New York.

Factories at KENSINGTON, CONN.

MANUFACTURERS, IMPORTERS AND DEALERS IN

GENERAL HARDWARE.



AGENTS FOR THE

Patent Bessemer Metal Wood Screws,

MANUFACTURED BY

UNION STEEL SCREW CO.,

CLEVELAND, OHIO.

We are prepared to furnish these Screws at manufacturers' prices, either Bright or Annealed, and will warrant them the strongest and most perfect Wood Screws in market.

In making orders, please state whether Annealed or Bright are wanted (we consider the former preferable); also, if it is desirable to have them shipped direct from Cleveland, Ohio. We deliver there or in New York, free of freight.

QUACKENBUSH, TOWNSEND & CO.,

Hardware, Cutlery, &c.

59 & 61 Reade Street, N. Y.

Depot for THOS. JOWITT & SONS, (Sheffield, England,) FILES and HORSE RASPS.

Rough & Ready And CLIPPER SCYTHES, Warranted.

Manufacturers of the

CHALLENGE DOOR & GATE SPRING.

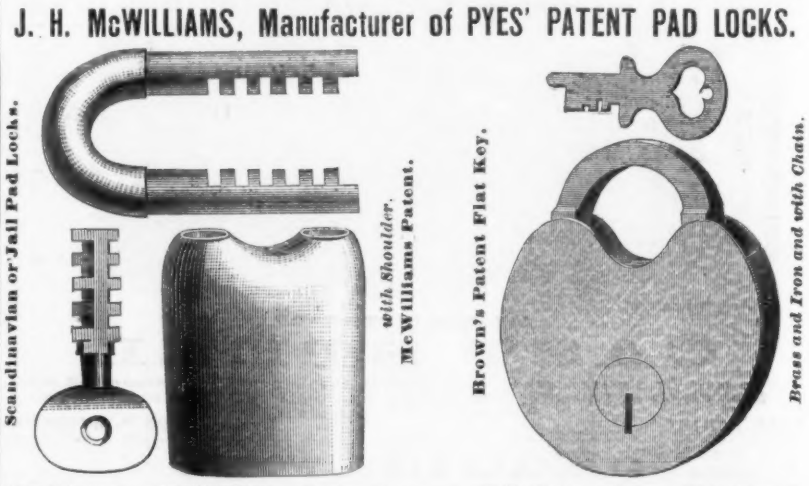
Patented March 4, 1873.

Agents for Norwich Lock MFG. CO.

"BEAVER" (American) FILES and HORSE RASPS.

"WIDE AWAKE" AXES.

J. H. McWILLIAMS, Manufacturer of PYES' PATENT PAD LOCKS.



JOHN J. TOWER, Sole Agent, 96 Chambers St, N. Y.

CAPEWELL'S GIANT NAIL PULLER.

Saves Boxes, Nails and Labor.

Sold by all House Furnishing and Hardware Jobbers.

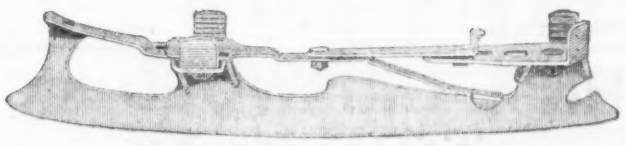
MALTBY, CURTISS & CO.,

MANUFACTURERS,

34 Reade Street, New York

General Agents for CAPEWELL'S LITTLE GIANT TACK HAMMER.

ACME CLUB SKATES.



BRADFORD & ANTHONY,

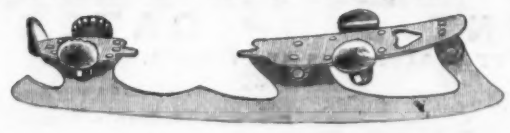
SOLE AGENTS IN THE UNITED STATES FOR

Forbes' Pat. Acme Club Skates

The only Reliable and really Self-Fastening Skate ever Invented.

Also, Sole Selling Agents for

WINSLOW'S ALL CLAMP CLUB



A new and Improved Skate, with Heel and Sole Clamp Fastening.

Send for Illustrated Price List of Skates and Straps.

BRADFORD & ANTHONY, Boston.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 0 per cent. per annum.

Anvils.—Solid Cast Steel.....₱ lb 14c
Peter Wright's, (Advanced April 1st.)₱ lb, gold, 11½c
Wilkinson s..... " 11c
Eagle..... list 11 cents—dis 20 @ 20&10 %
Apple Parers.—Union.....per doz $7 00
Victor..... " 7 75
Domestic..... " 7·75
Reading..... " 7 75
Bay State Paring, Coring and Slicing..... " 15 00
" " Peach Parers..... " 10 50
Axes.—Mann s Light.....Per doz. $12 00 @ 11 50
Hunt's Light..... " 14 00 @ 12 50
Red Indian, all sizes..... " 12 00 @ 11 50
Red Chiertain, all sizes..... " 12 50 @ 12 00
Crown Prince..... " 12 50 @ 12 00
Augers and Auger Bits.—Pierce's Pat. Twist Bits.....dis 30 %
Douglass' & Ives' Bits.....dis 40&10 %
Connecticut Valley Auger Bits.....dis 40&10 %
Cook s Bits.....dis 40 10&10 %
Jennings' Bits.....dis 10 %
Bates' Nut Augers.....dis 40&10 %
Douglass' & Ives' Augers.....dis 40&10 %
Watrous' Ship Augers.....dis 10&15 %
Bonney's Pat. Hollow Augers.....dis 25 %
Stearns' Patent Hollow Augers.....dis 25 %
Balances.—
Landers, Frary & Clark's..... } Sold on Morton's new
Morton's..... } List.....dis 50 %
Chattillon s.....
Common Spring with Hook..... ₱ doz $1 88 @ 2 00
Bells.—Bevin Bros. Mfg Co. Light Hand Bells.....dis 70 %
Common (Tissue Paper Weight).....dis 70&10 %
Swiss Pattern Hand Bells.....dis 50 %
Connell's Door Bells.....dis 50&5 @ 50&10 %
Gt. Western & Kentucky Cow.. dis 50&10 @ 50 10&5 %
Boring Machines.—Bates' Mfg. Co., complete with augers.....dis 20 @ 25 %
Douglas Mfg. Co., complete with augers..dis 20 @ 25 %
Common Boring Machines, no Augers.....$4 00 @ 3 75
Anguiar " ..... 5 00 @ 4 75
Bolts.—Eastern Carriage Bolts.....dis 75 %
Western " " .....dis 75 %
Philadelphia " " .....dis 60 %
" Eagle, (Coleman's).....dis 60 %
Wrought Shutter, Stanley.....dis 50 @ 50 %10 %
Braces.—Barber s.....dis 40&5 %
Fackus.....dis50 %
Bartholomew s American Ball.....dis 10&10 @ 15&10 %
Snowara.....dis 50 %
Butts.—Cast Fast Joint, Narrow.....dis 25&10 @ 30&10 %
" " Broad.....dis 35&10 @ 40&10 %
Cast Fast Loose Joint.....dis 45&10 @ 50&10 %
" Acorn, Loose Pin.....dis 4 0&10 @ 45&10 %
" Mayers & Parliament.....dis 35&10 @ 40&10 %
" Acorn Jap'd.....dis 45&10 @ 50&10 %
Wrought Loose Pin.....dis 35 %
" Table Hinges and Back Flaps.....dis 40 %
" Narrow.....dis 50 %
" Loose Joint.....dis 35 %
Parker's Blind Butts.....
Sheperd s " ..... } Discount 60 %; by the case
Garretson's " ..... } 60&10%.
Clark's " .....
Lull & Porter's Hinges.....dis 60 %; by the case, 60&5 %
Garretson's Blind Butts Light No. 0..... } Discount 60 %
" " Lull & Porter Pattern..... } By the case
Cherrytree Blind Butts..... } 60&10 %
Chains.—German Halter.....dis 20 %
" Coil.....dis 20 %
Galvanized Pump..... net 13 @ 13½c
Best Proof Coil Chain—

₱ lb.	10½	9½	9	8¾	8½	8c gold
	3-16	¼	5-16	⅜	7-16	½ ⅝ in.

By the cask, 500 lbs., ½c per lb. less Common Chain, ½c per lb. less.
Chisels.—Socket Framing.....dis 60 @ 60&10 %
Socket Firmer.....dis 60 @ 60&10 %
Tang " .....dis 40&10 @ 50 %
Beaty s Framing and Firmer.....dis 2 %
Casters.—Iron Bed.....dis 60&10 @ 40 %
Porcelain Wheel Bed.....dis 40&10 @ 50 %
Iron and Brass Wheel Plate.....dis 40 @ 40&10 %
Porcelain Wheel " .....dis 50 @ 50&10 %
Clothes Wringers.—Universal..... per doz $72 00
Novelty..... " 72 00
Discount on 2 dozen lots. $2 per dozen.
Coffee Mills.—Common Box and Side.....dis 15 %
Patent Box and Side.....dis 15 %
Cutlery.—American Pocket (best).....dis 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices.
Drawing Knives.—Hart Mfg. Co. s.....dis 60 %
Adjustable Handle.....dis 10 @ 15 %
Beatty.....dis 15 @ 20 %
Fry Pans.
Tinned.....dis 40 @ 45 %

₱ doz.	$3 50	4 00	4 50	5 00	5 50	6 50	7 50	9 00	10 00
No.	0	1	2	3	4	5	6	7	8

Burnished.....dis 40 @ 45 %

₱ doz.	$3 00	3 75	4 25	4 75	5 25	6 00	7 00	8 00	9 00
No.	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files.....new list
" Bastard..... "
" Taper..... "
Butcher's Mill (Advanced March 5th)...$5 25 to £ gold
" Bastard..... 5 25 to £ gold
" Taper..... 5 25 to £ gold
Fluting Machines.
K. F. M.—4¼ in. rolls, $5·50.....dis 15 %
" —6 in. rolls, $6·50.....dis 15 %
Mrs Knox—4 in. rolls, $5·25.....dis 20 %
" —6 in. rolls, 7·00.....dis 20 %
Hammers.
Yerkes & Plumb's.....dis 15 %
Hammond & Son's.....dis 15 %
Veree.....dis 20 %
Hatchets.
Beatty's.....dis 15 @ 20 %

Shingling and Half.	₱ doz.	$7·00	7·50	7·75	8·00
	No.	1	2	3	

Yerkes & Plumb.....dis 15 %

Shingling and Half.	₱ doz.	$7·00	7·50	8·00	8·50
	No.	1	2	3	4

Claw	₱ doz.	$7·50	8·00	
	No.	1	2	3

Hinges.
Strap and T. (Changed March 24).....dis 40 %
Horse Nails.

	Nos.	6	7	8	9	10
Ausable		27	25	24	23	22
Globe		28	26	25	24	23
Brundage		26	24	23	22	21
	Nos.	5	6	7	8	9
Putnam		32	28	26	25	24

On Ausable, Globe and Brundage 1000 lb lots.....dis 5 %
Knobs.—Door, Mortise and Rim.
Makes in Combination.....new list dis 45&5 %
Extra discount for cash 2 %
Mineral and Rim.....dis 5 %
Locks and Latches.—Rim and Mortise.....dis 40 %
Extra discount for cash 2 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 40 %
Extra discount for cash 2 %
Scandinavian Pad Locks.

₱ doz.	$10·50	10·50	12·00	12·00	15·00	15·00
No.	9	9½	10	10½	11	11½

dis 15 %

₱ doz.	$13·00		18·00		22·00	22·00
No.	12		12½	13		13½

dis 15 %
Trunk Locks.....dis 5 @ 10 %
Thumb and Rozgens Latches.....dis 25 %
Lanterns.—Square Candle and Oil.....dis 10 %
Globe for Oil.....dis 10 %
" Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %
Mattocks.—Long and Short Cutter.....dis 25 %
Western Pattern.....dis 25 %
Pennsylvania Pattern.....dis 15 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60&10 @ 65&10 %
Lincoln's " .....dis 40&10 @ 50 %
Landers, Frary & Clark's Petroleum.....dis 15&10 %
Taylor's Petroleum Faucets.....dis 20&10 %
Brass Liquor Cocks.....dis 20&10 %
Meat Cutters.—Dixon's.....dis 20 %
Woodruff.....dis 2 %
Stowe.....dis 20 %
Hale's.....dis 35 %
Stuffers.....dis 20 %
Planes.—Auburn Tool Co.. "Bench".....dis 40 %
Second Quality.....dis 50 %
Metallic Plane Co.....dis 25&5 %
Evans Pat. Circular.....net
Plumbs and Levels.
Adjustable.....dis 60&10 %
Non-Adjustable.....dis 60, 10&10 %
Plane Irons.—American.....list net
Butcher's.....gold £, $5 50
Picks.—Philadelphia.....net
Pittsburgh.....net
Rules.....dis 60, 10&10 @ 70 %
Rakes.—Cast Steel Garden.....dis 40 @ 40&5 %
Malleable Garden.....dis 40 @ 40&5 %
Wood Head Iron Teeth.....dis 40 %
Steelyards.—American Pattern.....dis 15 %

₱ doz.	$5·50	7·00	9·00	10·00	11·00	12·00
No.	50	100	150	200	250	300

English Pattern.....dis 15 %

₱ doz.	$7·00	8·67	10·67	12·67	14·67	16·67
No.	50	100	150	200	250	300

L. F. & C. Excelsior.....dis 10 %

₱ doz.	$9·00	10·00	12·00	15·00	18·00	21·00
No.	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₱ doz. $10·00 net
Golden Clipper No. 10, Boxed and Sharpened.....₱ doz $9·75 net
Green Clipper No. 8, Boxed and Sharpened.....₱ doz $9·50 net
Crummon Scythes.....₱ doz $7·50 @ 9·00
Squares.—Steel and Iron. new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 15 %
Disston's Hand.....dis 12½ %
W. McNiece a H'd, Cross-Cut & Circ'r, new list..dis 15 %
Boynton's Lightning, new list.....dis 40 %
" Champion.....dis 45 %
Shovels and Spades.
Rowland's Plain Back, Jan. 23d.....dis 30 @ 35 %
" " Back Strap " .....dis 30 @ 35 %
Oliver Ames & Sons.....dis 20 %
Brady Shovel Co.....dis 20&5 %
Sad Irons.—Richmond (polished face).....per lb. 3¾c
Richmond (polished face)..... by the cask " 3½c
Stone.—Arkansas Oil, No. 1.....₱ lb $1·88
Turkey Oil, No. 1..... " 1·00
Washita Extra..... " 30c
" No. 1..... " 22c
" " 2..... " 15c
..... 5½c

Screws.—Iron.....new list, Sept. 1st, 1875, dis 30 %
Brass.....dis 30 %
Spoons.—
Plated.....dis 40&10 @ 50 %
Britannia, Boardmans (new list).....dis 50&10 %
" Parkers (old list).....dis 50 %
German Silver.....dis 30 %
" Light.....new list dis 35 %
Lalance & Grosjean Iron.....dis 10 %
Springs.—Gray's Door.....dis 50 @ 50&10 %
Torry's Door.....dis 50 @ 50&10%
Stocks and Dies......dis 10&5 %
Stove Polish.—Gem.....₱ gross, $5·00
Onyx..... " $5·00
Try Squares.—Winterbottom.....dis 10 @ 15 %
Stanley Rule and Level Co.....dis 45&10 %
Willis Thrall, No. 2.....dis 30&10 %
Diaston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 72½ %
" " by the case..dis 72½&7½ %
Clout and Finishing Nails.....7½ %
" " by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 30 %
Imitation " " .....dis 30 %
Vises.—Solid Box, currency.....₱ lb net 14c
Wrenches.—Coes Genuine.....dis 40 @ 40&5 %
Coes Imitation Wrought Bar.....dis 50&10 %
" " Malleable Bar.....dis 60&10 %
" " (Kellogg) Malleable Bar.....dis 65&10 %
Tafts Pattern (Wrought Bar).....dis 70 @ 70&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
" " Improved Baxter.....dis 25 %
" " Adjustable Fork.....dis 25 %
Wire.—No. 0 to 18.....(Advanced April 24th).....dis 40 %
No. 19 to 26..... " " .....dis 47½ %
No. 27 to 36..... " " .....dis 52½ %
Coppered 0 to 12.....dis 15 @ 20 %
Tinned Broom Wire.....dis 25 %
Galvanized Wire No. 1 to 18.....dis 40 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.
August 9, 1875.

Augers—Snell Mfg. Co.....dis 25 %
Axes—Francis.....11 50
Bits, Auger—Snell Mfg. Co.....dis 25 %
Phœnix.....dis 40 %
Bells, Cow—Yaw s Genuine.....dis 20 %
Braces—Bit, Spofford's Patent.....dis 50 %
Brads, Cut.....dis 50&7½ %
Boards—Stove, Brooks' Pat. dis 35 % 4 mos.; 35&5 % 30 dys
Butts—Brass.....dis 10 %
Wrought Narrow.....dis 30 %
" Broad, Loose Joint.....dis 35 %
" Table and Back Flaps.....dis 90 %
Wrought Butts, Loose Pin.....dis 35 %
Belting—Rubber.....dis 30 @ 10 %
Leather, new list, oak tanned.....dis 20 %
Brick—Bath (box of 2 doz) Best English.....$1·25
" Rutherford.....$1·00
Can Openers—Sprague's.....dis 50 %
Cases—Parlor Coal Hod.....dis 15 %
Chalk—White, Carpenter s.....₱ gross, 57c
Red, Carpenter's..... " 90c
Chisels—Firmer Socket.....dis 60, 10&10 %
Framing Socket.....dis 60, 10&10 %
Corner Socket Chisels.....dis 60, 10&10 %
Slick's Carpenters'.....dis 60, 10&10 %
Castings—Malleable.....₱ lb 9½c
Egg Beaters—"Peerless".....per doz $3·50
" Centripetal".....per doz 5·00
Elbows—Corrugated.....3 5 6 7
Charcoal.....$3·50 4·50 5·25 6·50 } dis 10 %
Russia.....7·00 9·50 12·00 14·00 }
Files—Mayhew Bros.....dis 50 %
Fluters—Geneva Hand.....₱ doz. $15·00
Freezers Ice Cream—" Champion.....dis 33⅓ %
Hammers—Henry W. Kip's.....dis 10 %
Hinges, Gate—Shepard's.....dis 30&10 %
Hinges—Window Blind—
Sheparl s and Standard.....dis 60&10 %
Wrought Strap and T.....dis 33⅓&10&5 %
Rods, Coal—Plain, Black and Galvan'd...new list dis 15 %
Funnel, Black and Galvanized..... " dis 15 %
Fancy and Helmet..... " dis 15 %
Sad Irons.....3¾c
Kettles—Brass.....₱ lb 45c
Copper, "Hand Made".....38c, @ 40c.
Enameled.....dis 50&10 %
Knives, Drawing—Oval No. 1.....dis 60, 10&10 %
Razor Blade.....dis 60&10 %
Lanterns "Peerless."....NO. 1 3 10
₱ doz $26 00 $10 50 $13 75 dis 10 %
Tubular.....$11·00
" with Guards.....11·50
Machines—Apple Paring, "Keystone".....7·75 ₱ doz
Machines—Boring, Snell's.....dis 20 %
Mills, Coffee—Box and Side, common.....dis 15 %
Box Union and Eagle.....dis 15 %
" American.....dis 20 %
Molasses Gates—"Self Measuring".....dis 20 %
Nails—Clout and Finishing.....dis 7½ %
Shoe.....dis 7½ %
Horse, Ausable.....No. 5 6 7 8 9 10
30 27 25 24 23 22c
" " Pointed & Polished.....add 1c ₱ lb
" " 1000 lbs.....dis 5 %
" Clinton.....No. 6 7 8 9 10
21 19 18 17 16c
Packing—Rubber.....dis 30 @ 10 %
Paint—White Lead, U. S. Gov't.....₱ lb 8½c
Pans—Dripping.....₱ lb 10c
Rivets—Iron, Black and Tinned.....dis 25&7½ %
Screws—"American Screw Co"—
Flat Head, Iron.....dis 62½ %
Flat Head, Brass.....dis 52½ %
Skates and Straps—White's.....dis 20 %
Spoons, Iron Tinned.....dis 10 %
" by the case.....dis 20 %
Plated Rogers' A No. 1.....dis 50 %
Britannia.....dis 50&10 %
Squares—Steel and Iron.....new list 50 %
Scales—Buffalo Scale Works.....dis 25 %
Fairbanks.....dis 15 %
Stove Polish—Gem.....₱ gross, $4·50
" Dixon's.....6·00
Tacks—Half Weight Am. Iron.....dis 72½&7½ %
Vases—Palace Coal.....dis 15 %
Vises—
Parallel. Buffalo...Old pattern, dis. 80 %; new, do. dis 20 %
Ware—French, Tinned and Iron.....dis 20 %
Stamped and Japanned.....dis 5 %
Cast Iron Hollow.....dis 40 %
Wire—Bessemer Steel.....dis 10 %
Tin Plates.—Add for each X.....2·50
10x14, IC. Charcoal...$10·00 | 14x20 C. terne.....$9·00
12x13. " ... 10·50 | 20x28 C. " .....20·00
12½x17, " ... 9·50 | 20x28 X. " .....25·00
14x20. " ... 11·00
Pig Tin—Straits..... 24c @ 25c
Bar Tin..... 26c
Solder—No. 1, Crook's..... 16 c
Sheet Zinc—
" Lasalle".....$7·50 | 100 lb casks
$10·75 | 11·05 ₱ 100 lbs
Sheets.....$10·75
Babbitt Metal.....₱ ₱ 12c
Iron Wire—Bright and Annealed.....dis 45 %
Coppered.....dis 40 %
Tinned.....dis 25 %
Tinned Broom, Nos. 20 21 22
20c 21c 21c .....dis 33 %
Copper—Sheathing 14 @ 18 oz.....₱ lb 30c
Planished.....₱ lb 37c @ 39c
Bottoms.....₱ lb 38c
Bolts.....₱ lb 31 @ 33c
Braziers' Sheets.....₱ lb 31 @ 33c
Sheet Iron.—
18 Common.....$4 05
24 Common.....4 25
26 Common.....4·45
24 W. D. Wood & Co., Smooth Finish.....5 30
Am. Russia.....A B.
14c 11c
Gen. Russia, No. 1 stained.....16½c
" clean.....15½c
Galvanized.....dis 30 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.
August 2d, 1875.

Tin Plate.—I. C. 10x14 Charcoal.....$10 50 @ 11·50
I. X. 10x14 Charcoal..... 12 50 @ 14·00
I. C. Terne 14x20..... 9·50 @ 11·00
I. C. Terne 20x28..... 20·50 @ 23·00
I. C. 20 inches Continuous..... 21·00
Block Tin.—
Pig.....₱ lb 26c
Bars.....₱ lb 27c
Solder.—
A 1.....₱ lb 16c
Roofing.....₱ lb 17c
S. & Co.....₱ lb 21c
Lead.—Pig.....₱ lb 7c @ 7¼c.
Bar.....₱ lb 8½c
Copper.—
Ingot.....₱ lb @ 24c
Planished..... " @ 36c
Sheathing..... " @ 31c
Copper Drops..... " @ 34c
Sheets, 6 to 7 lb..... " @ 37c
" 8 to 9 lb..... " @ 35c
" 10 to 12 o..... " @ 33c
" 13 lb. up..... " @ 31c
Copper Bottoms..... " @ 33c
Zinc. Cask, 500 to 1000 lbs.....₱ lb 10½ @ 10¾c
Case, 100 lbs..... " 10¾ @ 11 c
Slab..... " 7½c
Brass.—Roll, No. 6 to 20.....₱ lb 30c
Roll, No. 30 to 36..... " 35c
Wire, No. 0 to 20..... " 35c
" 20 to 25..... " 40c
Babbit Metal.—Sellew & Co..... " 35c
Aliens'..... " 20c
Market..... " 12c
Antimony.....₱ lb 17c
Bismuth.....₱ lb $4 00
Nickel.....₱ lb $3 50
Russia Iron.—Bundle.....₱ lb 17c
Less than bundle.....₱ lb 18c
No. Stained.....₱ lb 15c @ 16c

Sheet Iron.	Com. B.	Smooth Fin. S. L. U.	Smooth D Re'fd.
15 to 20	4c	5·10c	7·10
22 to 24	4·10c	5·20c	7·20
26	4·20c	5·30c	7·30
27	5½c	5½c	7·50

Galvanized Iron.—Full bundles.....dis 27½ %

Nos. 18 to 20	12c	No. 26	14c
22 to 24	13c	27	15c

Bar Steel.—Silver, ₱ lb 16c Crescent, 21c.
Iron Wire.....dis 35 %
Enameled Ware.....dis 50 %

One Piece Corrugated Elbows.....dis 10 %

Charcoal Iron.		Russia Iron.	
4½ inch.....	₱ doz $2·50	4½ inch.....	₱ doz $5·00
5 "	" 3·50	5 "	" 7·00
5½ "	" 4·50	5½ "	" 7·50
6 "	" 5·50	6 "	" 12·00
7 "	" 6·50	7 "	" 14·00

Leader Elbows, Flat Crimp Retinned or Galvanized.—Dis. 10 %

	₱ doz.		₱ doz.
2-inch.....	$1 75	2½-inch.....	$2 75
3-inch.....	2 25	3½-inch.....	3 25
4-inch.....	2 50	4½-inch.....	3 50

Sheet Iron Bread Pans.....₱ ₱ 8½c
American Broilers.....₱ doz. $13·50
Tinmen's Machines.....dis 5 %
Sad Irons.....₱ lb, 3½ @ 3¾c
Brass Kettles.—Ansonia.....45c
Dog Irons.....3¾c

PITTSBURGH.

The following are the Card rates of Lewis, Oliver & Phillips, H. B. Newhall, 11 Warren St., New York, Agent. Iron, standard list assorted sizes, for large orders, specifications to include Bands, small Rounds and Ovals, 2·5c. rate, 2 % off net.
Flat Rail (1¼x¼), punched and coun'sunk..4·1c ₱ lb net
Iron Wedges.....4¼c ₱ lb net
Norway Nail Rods.....8¼c ₱ lb net
Crow Bars (in ordering please state whether "Wedge" or "Pinch" point).....4¾c ₱ lb net
Beetle Rings.....8 c ₱ lb net
Fence Pickets—
⅜ round, bent to shape, 25c ₱ ft. of fence, less 15 % off net.
Discount off Standard List.
Carriage and Tire Bolts.....75 % off net
Carriage and Tire Bolts delivered on cars or boats in Pittsburgh.....20 % off net
Stove Bolts.....20 % off net
Machine and Square Head Bolts.....40&10 % off net
Coach and Lag Screws.....40&10 % off net
Bolt Ends.....40 % off net
Pat. Hot Pressed Square and Hexagon Nuts, small sizes, from 3-16 to ⅜ in.....8¼c ₱ lb off net
Pat. Hot Pressed Square and Hexagon Nuts, large sizes, from 7-16 to 2 in.....6¾c ₱ lb off net
Washers, all made from new band iron, small sizes, from 3-16 to ⅜ in.....9¾c ₱ lb off net
Washers, all made from new band iron, large sizes, from 7-16 to 1¾ in.....7¾c ₱ lb off net
Nuts and Washers in 25 lb. boxes, ½c ₱ lb ex. Nuts and Washers in lots less than one keg each size, ½c ₱ lb ex. Nuts and Washers in 5 lb. boxes, 1c. ₱ lb ex. net prices.
Standard Caps, for Plows.....5¼c. ₱ lb net
Iron Harrow Teeth, in lots of 1 ton or more, packed in 200 lb. boxes, 1 in. diam. 3¾c ₱ lb net; ⅞, ¾ in. diam. 3¼c ₱ lb net; ⅝ in. diam. 3¾c ₱ lb net.
Patent Headed Harrow Teeth, packed in boxes ½c ₱ lb ex
Skein Bolts, in bulk, in lots of 1 keg or more, ⅝ in. diam. 5c ₱ lb net; 9-16 in. diam. 6c ₱ lb net; ½ in. diam. 7c ₱ lb net. 1c ₱ lb extra when less than 1 keg of each size is ordered.
Strap & T Hinges...33⅓&10 % off net, delivery as custo'ry
Screw Hitching Rings.....$5 25 ₱ 100 net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 ft. long.....₱ lb 3¾c net
1 to 2 in. diam. from 4 to 8 ft. long..... " 4 c net
1 to 2 in. diam. from 1½ to 4 ft. long..... " 4¼c net
⅞, ¾ and ⅝ in. diam. over 4 ft. long..... " 4½c net
⅞, ¾ and ⅝ in. diam. from 1½ to 4 ft. long " 5 c net
Bridge bolts with upset ends.....¾c. ₱ lb extra
Wrought iron plates, punched.....4¾c. ₱ lb net
Cast Iron Washers.....₱ lb 3½c net
Duck Nest Tuyere Irons.....$14 50 ₱ doz net

WAGON HARDWARE.

Wagon Box Strap Bolts—
10 in. long by 7-16 at Screw End, ₱ set of 8 bolts.. 45c
12 " ½ " " 8 " .. 55c
10 " 9-16 " " 8 " .. 65c
12 " 9-16 " " 8 " .. 70c
14 " 9-16 " " 8 " .. 80c
10 " ⅝ " " 8 " .. 80c
12 " ⅝ " " 8 " .. 80c
14 " ⅝ " " 8 " .. 90c
16 " ⅝ " " 8 " .. 1 00
18 " ⅝ " " 8 " .. 1 10
20 " ⅝ " " 8 " .. 1 20
5c ₱ set for each additional inch over 14 in made. All lengths
In ordering Box Strap Bolts please give diameter at Screw End.
Wagon Box Rods, narrow track, each.....15c
" " wide track, each.....17c
Single Tree Irons, ₱ set of four pieces.....30c
Wrought Iron Bolster Plates, 2¾ in. wide, ₱ set.....45c
" " 3 " " 50c
" " 3¼ " " 55c
" " 3½ " " 60c
Wagon Brake Ratchets, each.....14 c
" " finished with guard, each..40 c
Wrought Hammer Straps, heavy pattern, each.....13 c
" " light " each.....12 c
" Rub Irons, each.....9 c
Stay Chain Hooks, each.....5½c
Double and Single Tree Clips, figure 1, each.....8 c
" " " 2, each.....9 c
" " " 3, each.....11 c
Axle Clips, Round Part ⅝, Flat Part 1¼, each.....8c
Wagon Clevis, including Pin, complete, each.....10c
Pole Caps, each.....2½c
Single Tree Hooks, Nos. 1 and 2.....4½c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks, Clevis and Pin, Clips, Single Tree Hooks, and Pole Caps, in lots of 50 sets.....dis 15 %
Wagon Box Staples, 1¼ to 2¼ in. to clinch. ₱ 1000 $11 00 net
" " " Bevel Box Iron, to rivet on, ₱ 1000 7 50 net
Neck Yoke Eyes, each.....4¼c net
" " with ⅝ rings, each.....7¾c net
King Bolts, ⅞, 1, 1¼, and 1⅛ in. diam.....₱ lb 4¼c net
Wagon Rivets, ex. large, flat, oval and steeple head, ¼ in. diam. all lengths..... " 8¼c net
Wagon Rivets, 3-16 in. diam., all lengths..... " 9¼c net
" ¾ to 1 inch long..... ₱ lb 1c extra
" & Nails, in 5 lb paper boxes.... " 1c extra
" in 25 lb wood " " ½c extra
Wagon and Hinge Nails, ¼ in.....₱ lb 17 c net
" " 5-16 in..... " 19 c net
Wagon Rivets and Nails, in less lots than one keg each size..... " ½c extra
Double Tree Plates..... " 8c net
Coupling " ..... " 5c net
Tongue " ..... " 3½c net
Neck Yoke Plates..... " 10½c net
Tongue Cap Iron, 1¾, 2 & 2¼ in. wide, same price ₱ lb as Band Iron.
Wagon Chains, Stay, Lock and Tongue, 5-16 in. ₱ lb 10¼c net. ¼ in., 11¼c. net
Above prices are free on board cars in Pittsburgh. Subject to change of market, without notice.

DETROIT.

(Reported by Messrs. Jewett & Root.)
August 30, 1875.

Tin Plate.—Best Charcoal | **Pig Tin.**—
IC. 10x14.....$10 25 | Large Pigs.....24c
IX, 10x14..... 13 00 | Small Pigs.....26c
XX, 10x14..... 15 75 | Bars.....26c
IC. 12x12..... 10 75 | **Bright Wire.**
IX. 12x12..... 13 50 | 63 lbs. in bdl.....dis —
IC. 14x20..... 11 25 | **Copper.**—
IX. 14x20..... 14 00 | Sheathing.....31c
XX. 14x20..... 16 75 | Copper Bottoms.....32c
XXX. 14x20..... 19 50 | **Planished Copper.**—
XXXX. 14x20..... 22 25 | Sheathing, 14x48.....38c
DC. 100 Plate..... 9 75 | Boiler Size, No. 7.....40c
DX. " ..... 12 50 | " " No. 8. ...40c
DXX. " ..... 15 25 | " " No. 9 ....40c
DXXX " ..... 18 00 | **Sheet Iron.**—
DXXX 100 Plate.. 20 75 | No. 18 Am. Com.....4 00
IX, 14x14..... 21 50 | No. 24 Am. Com.....4 20
IC. 10x14 W..... 9 75 | No. 26 Am. Com.....4 40
IX. 10x14 W..... 12 50 | No. 27, Am. Com 4 60
Roofing Tin.—Best Char. | W. D. WOOD'S & CO.'S SHEET IRON.—
IC. Terne, 14x20.....$ 9 50 | Nos. 15 to 20 Smooth $5 00
IX. " 14x20..... 12 25 | " 21 to 24..... 5 20
IC, Terne, 20x28..... 20 00 | " 25 & 26..... 5 40
IX. " 20x28..... 25 00 | " 21 to 24 Char'l.. 6 70
Coke Tin.— | " 25 & 26 " .. 6 90
IC, 10x14 Coke.....$ 9 25 | RUSSIA.
IX, 10x14, Coke .... 12 00 | Genuine.....17c
IC, 14x20, " ..... 10 25 | Imitation.....14c
Solder.—No. 1..... 16c
No. 2..... 15c

Eames' Pat. Molding Machine
FOR METAL CASTINGS.

The above machines have recently been introduced in several large iron foundries in this country, where they have given entire satisfaction. Among the advantages are :

1st. A great saving in the cost of producing castings.

2d. A man can learn to mold with the machine in less than 30 days' time.

3d. The castings produced will be found more perfect, less poor work, and more uniform than if molded by the old method.

The machine is adapted for either Iron or Brass Castings. *Price Reduced.* For further particulars, send for Circular. Address,

P. & F. CORBIN,
EXCLUSIVE LICENSES,

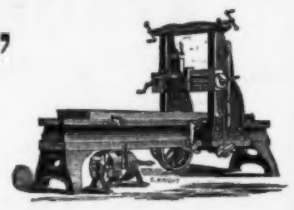
Also Manufacturers of *Architectural Bronze Work, Locks, Hinges and fine Builders' Hardware generally.*

New Britain, Conn. New York, 87 Chambers St.

Fitchburg Machine Co.

Manufacturers of

Machinists' TOOLS.



Office and Works,

Sumner Street,

FITCHBURG, MASS.

CENTENNIAL
SELF-LUBRICATIVE

Hemp Piston Packing
FOR

Locomotives, Steamships, Stationary Engines, Hot or Cold Water Pumps.

Recommended by Master Mechanics and Engineers, as the cheapest and best in market. **No more Extortionate Prices. No more Fluted Rods**—but a good article at fair price.

JOHN CANFIELD & CO.,
SOLE MANUFACTURERS,
Office, 1321 Fairmount Ave., Phila.
PATENT APPLIED FOR. Send for Circular.

THE NATIONAL STEEL TUBE CLEANER.

Patented July 28, 1874.

Guaranteed to clean better, last longer & work easier than any in the market.

REMOVES ALL

Carbon and Scale from the Boiler Tubes.
ADOPTED AND IN USE BY UNITED STATES NAVY.

For sal by dealers.

THE CHALMERS SPENCE CO Foot of East 9th St., New York, Agents for the United States.

TRADE PAGE'S PATENT MAY.8. 1866. MARK

HOUSE ESTABLISHED, 1862.

GEORGE S. FALES,
SUCCESSOR TO
FAIRBROTHER & FALES
Sole Owner and Manufacturer of

Page's Patent Lace Leather,
And Manufacturer of

OAK BELTING,

Also, Picker or Moccasin Leather, for Boot and Shoe Packs.

Angular Belting and Pullies made to order.

PAWTUCKET, R. I.

Ask for Star Stamped Lace Leather.

RICHARD DUDGEON,

No. 24 Columbia Street, New York,

MAKER AND PATENTEE OF

Hydraulic Jacks and Punches,

ROLLER TUBE EXPANDERS

And Direct-Acting Steam Hammers.

Communications by letter will receive prompt attention.

JACKS for Pressing on Car Wheels or CRANK PINS made to order

BILLINGS & SPENCER CO.

MANUFACTURERS OF
CLAMP, DIE AND COMMON

LATHE DOGS.

Vienna, 1873.

Forged from Bar Steel *And Hardened*

Under Billing's Patent Process.

For Progress.

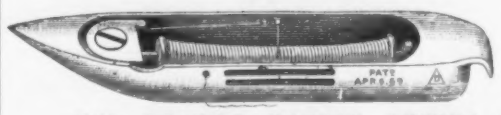
FIRST CLASS ARTICLES,

and something that every machinist and Tool Maker will appreciate.
Also, all Descriptions of **Wrought Iron & Steel**

DROP FORGINGS.

For Machine Handles, Lathe Wrenches, Spinning Rings, Marlin Spikes, Clinch Rings, Thumb Screws, Thumb Nuts, and Parts of Drill Chucks, Sewing Machines, Guns, Pistols, and

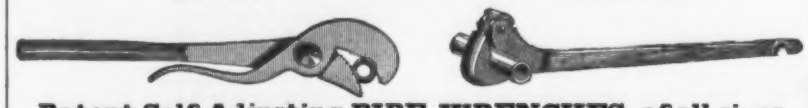
Machinery Generally.



TRADE B MARK.

THE BILLINGS PATENT SEWING MACHINE SHUTTLE,

Thirty Varieties now made, Forged Solid from Bar Steel and Cold Pressed. Also,
Barwick Wheatcroft



Patent Self-Adjusting PIPE WRENCHES, of all sizes.

Illustrated Circulars and Price List sent to any order on request. Lawrence St., Hartford, Conn.

AMERICAN TWIST DRILL CO.,

Woonsocket, - - RHODE ISLAND,

Sole Manufacturers of the celebrated

Diamond Solid Emery Wheel

Fast Cutting—Free from Glazing—It is the best Solid Emery Wheel.

Prices: 10x1, $2·90; 14x2, $9·75; 18x2½, $20·00; 24x3, $42·00.
All other sizes at proportionate prices. State diameter of Holes in your orders for Wheels.

MANUFACTURERS OF
PATENT EMERY WHEEL MACHINERY,
And Automatic Knife Grinders

For the rapid and perfect grinding of Planer, Paper Cutting, Leather Splitting and other long Knives.

These goods are unsurpassed for elegance of design, workmanship, capacity and durability. First premium awarded by American Institute, N. Y., 1870 and '73; Medal and Diploma by M. C. M. A., Boston, 1874.

STURTEVANT

Pressure Blowers, Fan Blowers and Exhaust Fans.

10,000 SOLD IN SIX YEARS.

SEND FOR ILLUSTRATED CATALOGUE.

B. F. STURTEVANT, 72 Sudbury Street,

BOSTON, MASS.

☞ Two First Premiums awarded by Franklin Institute Exhibition of 1874.

C. VAN HAAGEN & CO.,

2341 and 2343 Callowhill Street, PHILADELPHIA, PA.

Manufacturers of Latest Improved Machine Tools, Rotary Shapers, two sizes, Iron Planers, all sizes, Horizontal Drill Attachments, for upright power drills, Self-feeding Portable Drills, hand or power, Expansion Boring Bars, five sizes, Universal Slide Rest, for taper work, Twist Drill Sharpening Machines, automatic and adjustable in every direction, Noiseless Friction Gears, for transmitting up to thirty horse-power.

Send for Descriptive Circulars.

BUSH HILL IRON WORKS,

Corner 16th & Buttonwood Streets

PHILADELPHIA.

JAMES MOORE,

(Successor to MATTHEWS & MOORE,)

Engineer, Machinist, Founder and Boilermaker

CASTINGS of every description.

ROLLING MILL AND FURNACE EQUIPMENTS COMPLETF

Rolls Turned for Rails, Beams, Angles, and all shapes for Iron, Steel, or Composition Metals.

Sugar Mill, Saw Mill and Grist Mill Machinery,

AND MILLWRIGHTING IN GENERAL.

BOILERS—FLUE, TUBULAR AND CYLINDER, and all kinds of TANK AND PLATE IRON WORK

CLARK TOMPKINS

Manufacturer and Patentee of

UPRIGHT ROTARY Knitting Machines,

Cone Winders for Hosiery Yarns,
NAPPERS FOR HOSIERY GOODS,

Stop Motions & Alarms for Knitting Machines,

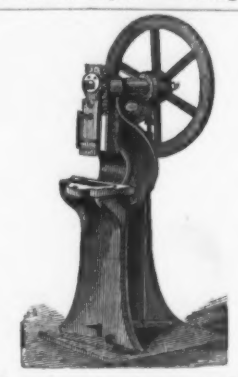
Flock Cutters, and Flock Renovators.

EXTRA PARTS FURNISHED PROMPTLY.

☞ I am also prepared to furnish anything in the line of Gear Cutting from 5½ feet to ⅜ of an inch in diameter, any shape of tooth desired; Racks, Worms, Worm Wheels, Screws any size or number of threads to the inch, Wood Planing, Iron Planing, Large Lathe Work, Gear Cogging, Shafts, Hangings and Pulleys, also all kinds of Mill Work, Jobbing, and Machinery in general.

Shop, Foot of Cypress St., Troy, N. Y.

Particular attention paid to Experimental Machinery. We aim to maintain our reputation for doing work well.



The American Institute, at their Fair in New York, will exhibit

A NEW Drawing Press

FOR THE USE OF

Tinners & Brass Workers.

ALSO,

OTHER TOOLS

Manufactured by

The Stiles & Parker PRESS CO.

Of Middletown, Conn.

Mr. Stiles will meet parties by appointment made by letter or otherwise.

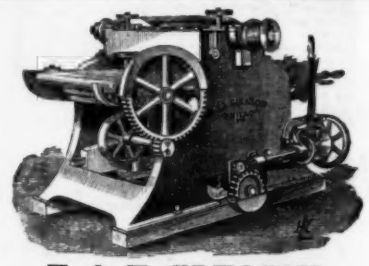
Exhibition opens Sept. 8th, and closes Nov. 18th, 1875.

JOSEPH WALKER, Prop. H. B. LYONS, Manager.

NEW MACHINERY WAREROOMS

915 Market Street, Philadelphia.

Hampson, Whitehill & Co.'s Stationary, Portable and Hoisting Steam Engines; Shive Governors, a Sure Regulator; Machinists' Tools, (the Pratt & Whitney Co.'s,) of world-wide reputation; Knowles' and Pulsometer Steam Pumps; Jones' Scales, "The Test;" Union Emery Wheels, and General Machinery.



E. & F. GLEASON,
Manufacturers of
IMPROVED WOOD TOOLS.
27 Haydock St., Philadelphia.

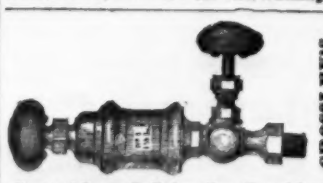
The Best Paper! Try It!!

The **Scientific American** is the cheapest and best illustrated weekly paper published. Every number contains from 10 to 15 original engravings of new machinery, novel inventions, Bridges, Engineering works, Architecture, improved Farm Implements, and every new discovery in Chemistry. The Scientific American has been published weekly for 30 years, and stands foremost of all industrial papers. A year's numbers contain 832 pages and several hundred engravings. Thousands of volumes are preserved for binding and reference. The practical receipts are well worth ten times the subscription price. Terms, $3·20 a year by mail, including postage. Specimens sent free. May be had of all News Dealers

PATENTS obtained on the best terms. Models of new inventions and sketches examined, and advice free. All patents are published in the Scientific American the week they issue. Send for Pamphlet, 110 pages containing laws and full directions for obtaining Patents.

Address for the Paper or concerning Patents,

Munn & Co., 37 Park Row, New York
Branch Office, cor. F and 7th Sts., Washington, D. C



CROSSLEY'S Patent Lubricator GLOBE VALVES, &c.

Corner **Adams & John Sts., Brooklyn, N. Y.**

HOLSKE MACHINE CO.,

279 Cherry St., near Jefferson St.

ELEVATORS

For Hotels & Stores a specialty.

Machinery in General made to order.

BOSTON.

(Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.)

Augers.—Watrous Ship....dis 10 %
L'Hommedieu Ship....dis 15 %
Axes.—Forester's Favorite, Bronzed....$12 00
Blue Jackets, Blue....11 5
Excelsior, Black....11 00
Chopper's Pride, Bronzed....10 50
Red Cross, Red....10 00
Red Cross, Handled....12 50
Boy's Handled Blue Jackets....12 00
Axe Handles.—Wadleigh's Oak—
A (Extra) $2·50. B (No. 1) $2·00. C (No. 2) $1·50 ⅌ doz
Bells, Sleigh—
Fancy Body, Patent Leather, Cloth Bound, White Metal, 30, No. 1....$1·70
Fancy Body, Patent Leather, Cloth Bound, White Metal, 36, No. 1....1·80
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 30, No. 1....·38
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 36, No. 1....2·50
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 30, No. 1....3·38
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 36, No. 1....3·50
Shaft, Strap, White Metal, House Bells, extra, 6, No. 1....per pair, 50c.
Common, 6, No. 1....45c.
Blind Hinges.—
Orr or Washburn's....per hundred sets $9 50
Blind Fasts.—
Orr or Washburn's....per hundred set $6 00
Bolts.—Carriage, Phila., "Girard Works....dis 50&10 %
Borax.—Best Refined....⅌ ℔ 15c
Borers.—Angle, Backus'....dis 30 %
Boring Machines.—Angle....each $4 75
Common, Snell's quality....each 3 75
Braces.—Barber's....dis 40&5 %
Backus'....dis 50 %
Spofford's....dis 50 %
Amidon....dis 50 %
Brackets.—Star Bronzed....new list net
Star Japanned....new list net
Store Shelf....new list net
Brass Faucets.—L. F. & C....dis 25&10 %
Butts.—Union Drilled Loose Joint....dis 45&10 %
" " Wire Fast Joint....dis 25&10 %
" " Acorn Loose Joint....dis 45&10 %
Brass Butts....dis 30 %
Wrought Table Butts and Back Flaps....dis 30 %
Wrought Narrow Butts....dis 30 %
Can Openers—Sprague's....dis 50 %
No. 1, Iron Handle....$4·00
No. 2, Wood Handle....4·50
Cartridges.—"U. S. Cartridge Co."....dis 50&10 %
Chisels.—"Buck Bros.' Shank Goods....add 20 @ 22½ %
Socket....add 22½ @ 25 %
Churns.—Lightning—
Redheffer patent.... 3 4 5 6 gall
per doz $22 00 $27 00 $31 50 $36 00
Coal Hods....dis 40 %
Fancy Japanned, No. 4, 15 in., $8·00; 5, 16 in., $9·00; 6, 17 in., $10·00.
Fancy Galvanized, No. 4, 15 in., $11·50; 5, 16 in., $13·00; 6, 17 in., $14·00.
Perfection, Jap'd, No. 4, 15 in., $12·00; 5, 16 in., $13·00; 6, 17 in., $14·00.
Perfection, Galv'd, No. 4, 15 in., $15·00; 5, 16 in., $16·00; 6, 17 in., $17·00.
Morning Glory, Jap'd, No. 4, 15 in., $12·00; 5, 16 in., $13·00; 6, 17 in., $14·00.
Morning Glory, Galv'd, No. 4, 15 in., $15·00; No. 5, 16 in., $16·00; No. 6, 17 in., $17·00.
Compasses and Dividers.—Bemis'....dis 35 %
P. S. & W....dis 25 %
Cordage.—Manila (usual trade dis.)....⅌ ℔. 15c
American Tarred Hemp Lath Yarn....⅌ ℔. 10c
Corn Hooks....per doz $2·75
Cow Ties....dis 10 %
No. 30, Open Ring, 3 foot, No. 6, with Toggle....$3·70
No. 35, " 3 " No. 6, " Snap....3·90
No. 40, " 3½ " No. 5, " Toggle....4·23
No. 45, " 3½ " No. 5, " Snap....4·40
No. 50, " 4 " No. 4, " Toggle....4·85
No. 55, " 4 " No. 4, " Snap....5·00
No. 60, " 4½ " No. 3, " Toggle....5·60
No. 65, " 4½ " No. 3, " Snap....5·80
Crow Bars.—Iron, Steel Points....⅌ ℔, 5½c
"Sweet" Steel Bars....⅌ ℔ 11c
Brown's Steel Bars....⅌ ℔ 10c
K. P. & Co. Extra Drill Steel....⅌ ℔ 15c
Dividers.—Cook's Nickel Plated....dis 15 %
Door Springs.—Stimson's Patent.—
No. 1, Light inside doors, $12·00....dis 25 %
No. 2, " outside " $18·00....dis 25 %
Torrey's....$4·00
Gem....1, $4 00; 2, $3 50; 3, $3 00 ⅌ doz
Egg Beaters.—Lightning, Redheffer pat. 1 qt., 4 qts.
per doz $8 00 $12 00
Emery.—Alden....⅌ ℔ 6½c
Wellington Mills....⅌ ℔ 5c
Files.—Earl Smith & Co.'s English....$5 to £ gold
American....$5 to £ currency, less 12½ %
Nicholson....new net list
Wheeler, Madden & Clemson....£5 net
Stubb's Tapers, genuine, 3 in., $1·50; 3½, $1·62; 4, $1·88; 4½, $2·18; 5, $2·50.
Funnel Irons.—$2·50 2·50 2·50 3·25 per doz
5, 5½, 6, 7 inch.
Deep Flange.—$3·50 3·75 4·00
5, 5½, 6 inch.
Hammers.—Maydole....dis 12 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $9·75
" " " " " " bell face, No. 1, $11; 1½, $9·75.
Hangers & Rollers.—Novelty....dis 30 %
Anti-Friction....$1 25 per pair—dis 30 %
Hatchets.—Underhill Edge Tool Co....dis 15 %
C. F. Dowse, warranted Cast Steel—
Shingling....0, $4·75; 1, $5·25; 2, $5·75
Claw....1, 5·75; 2, 6·25
Lathing....1, $5·50
Axe Pattern....1, $7·00; 2, 7·50
Broad....0, $5·75; 1, $6·00; 2, $7·50; 3, $9·25; 4, $10·75; 5, $12·75; 6, $14·75

Hinges.—Strap and T, Stanley Works....dis 33⅓&10 %
Plate, Loose and Fast Joint....⅌ ℔ 6c
Wrought Screw Hook....⅌ ℔ 6½c
Knobs.—Young's Imp. Silverd Glass....dis 45 %
Lanterns.—Tubular No. 0....$11·00
Guarded. No. 74, (with kerosene oil and candle burners)....6·25
Anti-Tubular....8·00
Lead.—Sheet and Pipe....9½c—less 10 %
Locks.—Norwalk Lock Co....dis 40&5 %
Mattocks.—
K. P. & Co., axe finish, long cutter....$13 00—net
Short cutter....12 75—net
Meat Cutters.—"Miles's" Challenge....dis. 20 %
No. 1, $22·00; 2, $30·00; 3, $40·00.
Metal.—Babbitt, No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ⅌ ℔
Nails.—10d and larger....$3 25 net
Nail Pullers.—Little Giant—Small....per doz., $22·00
Little Giant—Large.... " 30·00
Padlocks.—Wilcox....dis 40&5 %
All Brass, 2½ inch, 2 keys, job lot....$9 00
Paper.—Tar'd Sheathing....⅌ ℔ 2 c
Dry Sheathing.... " 3½c
" " "Beaver Brand" Rosin Sized.. " 4½c
Tar'd " " " .... " 3½c
Felt " " " .... " 4½c
Virginia Cane Fibre....4½c
Picks.—K. P. & Co., Solid Eyes....5 to 6 6 to 7
$9 00 $9 50
Pins.—Universal Hat and Coat all wood—
2 in....⅌ gross $2 50; 3 in., 3 50; 4 in., 4 50—dis 15 %
Potato Digger.—
"Partridge," 6 square tine....⅌ doz $12 00
Shumway & Co., 6 round tine....⅌ doz 9 00
Pulleys.—Axle.
Frame Pol. Wheel....No. 150, 50c., 1⅛ in.; 16, 38c., 2 in.
Common Axle....No. 18, 34c., 1⅞ in.; 26, 40c., 2 in.
Milled Axle....No. 2, 42c., 1¾ in.; 3, 50c., 2 in.
Nashua Pat. Axle Bronzed Face...1⅞ in., 80c; 2 in., 90c
Cast Steel Axle....2 in., $1·00
Pulley Blocks.—"Best Boston Make"....net
Common Strapped Blocks—

	4	5	6	7 inch.
Single,	75c.	88c.	$1·00	$1·13 each.
Double,	$1·00	1·12	1·25	1·60 "

Inside Iron Strapped Blocks—

	5	6	7	8	7	10 inch.
Single,	$1·00	1·13	1·38	2·00	2·25	1·75 each.
Double,	1·88	2·30	2·68	3·63	4·00	5·00 "

Inside Iron Strapped Blocks, with Patent Roller Bushings—

	5	6	7	8	9	10 inch.
Single,	$1·25	1·50	1·63	2·50	2·65	3 50 each.
Double.	2·50	3·00	3·38	4·63	5·00	6·50 "

Plated Ware.—Rogers Bros....dis 50 %
Plumb & Levels.—"Davis" Pat. Adjustable—
No. 1, Iron and Wood Center Levels....dis 50 %
No. 2, First Quality Levels....dis 60&10 %
No. 3, Iron Pocket " ....dis 35 %
No. 4, Level and Plumb Glasses....dis 60&10 %
No. 5, Iron Pocket Levels, per square and straight edge....dis 50&10 %
No. 6, Improved Iron Bench Planes....dis 20&10 %
Pocket Knives.—Conn. Cutlery Co....new net list
American Shear Co....dis 33⅓ %
Rail Barn Door.—For Novelty and Anti-Friction Hangers....per foot 7c., dis 30 %
Rivets.—Black....dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8.
13 13 14 14 15 16c ⅌ ℔ net
Rubber Moldings.—"Harmon's"....dis 10 %
No. 2, for Windows....per foot, 5c
No. 3, for Doors....per foot, 10c
No. 4, " ....per foot, 12c
Sad Irons.—Bless & Drake....⅌ ℔ 4c
Sand Paper—0 to 2, $4·25; 2 to 3, $4·75....dis 10 %
Saws.—*Hand and Panel*—
Wheeler, Madden & Clemson's, same list as "Disston's"....dis. 15 %
Disston's....dis. 12½ %
Cross Cut—
Wheeler, Madden & Clemson X Cuts....per ft., 37c
" " "Star" X Cuts. " 60c
" " " Champion X Cut. " 50c
" " " One Man X Cut..each, $2·25
Boynton's genuine Lightning X Cut....per ft., 60c
" " " One Man X Cut..each, $2·25
Circular—Wheeler, Madden & Clemson's....dis. 25 %
Mill— " " " ....dis. 25 %
Screws.—Am. Screw Co., new list Sept. 1st....dis 30 %
Aiken's....dis 30 %
Scythe Stones.—
"Willoughby Lake," first quality....⅌ gross $6·50
" " second quality.... " 3·00
Shovels.—O. Ames....dis 20 %
M. B. & D....dis 20 %
Snow, Malleable Iron Tip, D Handle—Agents for New England....$6·50
Snow, Malleable Iron Tip, long Handle—Agents for New England....5·50
Sifters.—Coal, Rice, &c....$12 00
Spading Forks.—M. & E....dis 25 %
Stone Pickers.—"Partridge," original...⅌ doz $15 00
Tools.—Aiken's Pattern, 20 in set; Parr's..$8·00 per doz
Traps.—Oneida....dis 25 %
Blake's....dis 50 %
Vises.—K. P. & Co.'s Solid Box. Blacksmith....⅌ ℔ 13c
Parker's Parallel....dis 10 %
Backus....dis 25 %
"Howards." Parallel....dis 20 %
Wardrobe Hooks.—Wire to drive....⅌ gross $1 00
Weather Strips.—"Harmon's"....per doz $5, dis 10 %
Weights.—Window Weights....⅌ ℔ 2c
Wedges—Axe....⅌ doz 38c
Wire.—
Eureka, in spools, No. 28 to 40 assorted....⅌ gross $3 50
Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black....⅌ ft 5½c
Wrenches.—Genuine Wrenches, G. A. Coes..dis 40&5 %
Walton....dis 50 %
Wringers.—
{Novelty and Universal} Tub No. 2 {....Less than doz, $72 00 / ....2 doz or more, 70 00}
Bench A....less than 2 doz $86 00; 2 doz or more $84 00
" B.... " " 94 00 " " 92 00
" C.... " " 110 00 " " 107 00
Eureka....per doz $60 00
Withington, Cooley & Co.—
Hoes, Rakes, Forks, &c....dis 33⅓ %

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz, 110 North Street, Boston, Importers and Commission Merchants.)

September 1, 1875.

Iron.—Best Refined Bar Iron....⅌ ton $60 00
"Burden Best" " " " 95 00
Swedish Bar Iron....gold " 110 00
Norway Shapes....gold " 125 00
Norway Nail Rods....gold " 130 00
Sheet Iron, American....⅌ ℔ 4½c
" " Galvanized.... " 9 c
" " Russian....gold " 13½c
Plate Iron, C. No. 1.... " 3½c
Iron Rails....⅌ ton $50 00
Steel Rails.... " 77 50
Pig Iron, Foundry, No. 1 extra.... " 28 00
" " No. 2 extra.... " 25 00
" Gray Forge.... " 23 00
" Scotch.... " 30 00 @ 32 00
Wrought Scrap Iron.... " 31 00
Old Rails.... " 28 00

Steel.—	⅌ ℔	German....⅌ ℔	9½c
Eng. Tool, gold	15½c	Spring....	8 c
American Tool	14½c	Tire....	6 c
" Mach	9½c	Sleigh Shoe....	4½c
Bessemer....	7 c	Toe Calk....	7½c
Tin Plates.—⅌ box gold		**Copper.**—	⅌ ℔
I. C. Char. 10x14....	$8·00	Ingot....	23½c
I. C. Coke 10x14....	7 00	Bolt....	30c
Char. Roof. IC. 14x20.	7 50	Sheathing....	30c
Coke " IC. 14x20.	6 50	**Lead.**—	⅌ ℔
METALS.		Pig....	7½c
Pig Tin.— ⅌ ℔., gold		Sheet & Pipe....	8·55
Banca....	21c	**Zinc.**—Sheet..⅌ ℔	10c
Straits....	19c	**Spelter**....⅌ ℔	7½c
English....	19c	**Antimony**, gold ⅌ ℔	12½c

ST. LOUIS.

Corrected weekly by Semple, Birge & Co.

Apple Parers.—Conqueror....⅌ doz, $7 75
Hudson's Rotary.... " 7 75
Axes.—Wm. Mann's, Red Warrior....⅌ doz $11 50
Wm. Mann's, W. Stewart's.... " 11 00
" C Marshall.... " 10 50
" Handled.... " $5 extra
" Double Bitted.... " 2. 50
H. L. B. & Co.'s, L. & Co.... " 11 50
" Pioneer.... " 12 00
" James & Co.... " 11 00
Hunt's.... " 13 00
Axles.—"Jones, Henry & Co.'s" Patent Lubricating, Half Patent, Swelled Taper, Plain Taper and Concord Axles....dis 10 & 5 %
Common Axles (Pat. Lubricating), 1½ inch and upward....⅌ ℔ 6½c.
do. less than 1½ inch.... " 7 c.
Bellows.—Best St. Louis make, 60c ⅌ in. dis 20&2½ %
Bells.—Troy, Church, School and Farm Bells..⅌ ℔ 42c
"Improved Amalgam Bronzed," 15 in., $3·00; 17 in., $4·00; 19 in., $6·00....net
Belting.—"Boston Belting Co.'s Rubber..dis 30&7½ %
"Bradford & Sharp's" Oak-Tanned Leather....dis 30 %
Bolts.—Arms, Bell & Co.'s Carriage & Tire..dis 70&10 %
Arms, Bell & Co.'s Machine....dis 30&10 %
Butts.—Western Butt Co.'s new list—
Narrow Fast Joint....dis 25&10 %
Broad Fast Joint....dis 3 &10 %
" Loose "....dis 45&10 %
Reversible....dis 40&10 %
" Japanned and Silver Tipped....dis 45&10 %
Loose Joint "Acorn" " ....dis 45&10 %
Wheeling Hinge Co.'s W't Fast Joint Nar....dis 30 %
" " " Broad....dis 35 %
" " Loose Joint....dis 35 %
" " Reversible....dis 35 %
" " Table & B'k Flaps....30 %
Churns.—Julian, No. 2, $7·00; No. 3, $7·50; No. 4, $8·50....dis 25 %
Cider Mills.
American Senior, $40·00; Am Junior, $25·00....dis 20 %
Corn Knives.—Dunn Edge Tool Co.'s Clip....⅌ doz 5 00
Seymour Mfg. Co.'s Solid Steel Back.... " 4 00
Corn Shellers.—Sandwich Mfg. Co.'s—
Power Shellers....dis 10 %
Hand Shellers....Special rates
Cotton Gins.—The Carver, 10 in. Saw, $4 a Saw..dis 15 %
12 in. Saw, $4·50 a Saw....dis 10 %
Crow Bars.—Steel Pointed....⅌ ℔ 6½c
Drag Saw Machines.—
Culver's Iron Drag Saw....dis 10 %
Robinson's Patent Sweepstakes Drag Saw....dis 10 %
Fanning Mills.—Nash & Cutt's....dis 20 %
Feed Cutters.—Improved Burdick National....dis 20 %
Sanford No. 1, $10 75; No. 2, $8 00....net
Files.—Black Diamond, Mill....$5·00 £ currency.
" Bastard....5·00 £ currency.
" Taper....5·00 £ currency.

Forges.—Keystone Portable Forge Co.'s....dis 12½ %
Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks....dis 33⅓ %
" " Handled Hoes....dis 33⅓ %
Garden Seed Drills and Wheel Hoes.
Allen's Double Wheel Hoe....dis 5 %
" Planet Drill, Nos. 2 and 3....dis 15 %
" Combined Drill and Wheel Hoe....dis 15 %
Grinding Mills.—Challenge Feed Mills....dis 15 %
Sedgebeer's Nonpareil Mills....dis 15 %
Hammers.—Masons' Hammers....⅌ ℔ 20c
Smiths' Hand.... " 20c
Handles.—No. 1 Fork, Hoe and Rake....dis 20%
No. 2 Fork, Hoe and Rake....dis 40 %
Harrow Teeth.—1 inch iron....⅌ ℔ 4½c
⅞ and ¾ inch iron.... " 4¾c
Barbed or Headed....½c extra
Hay and Cotton Presses.—
Dederick's Railroad....net list
" Perpetual....net list
Hay Knives.—
Dunn Edge Tool Co.'s....⅌ doz $15 00—dis 15&5 %
Lightning (Weymouth's Patent)....⅌ doz $20 50
Hinges—
Wheeling Hinge Co.'s Strap & T....dis 33⅓ & 10 %
Horse Hay Fork.—Nellis' Harpoon....dis 25 %
Horse Nails.—National Patent Pointed....30c rates
National Patent Pointed, extra finished....32c "
Horse Powers.—Pitts or Carey's Patent....dis 10 %
Wheeler's Railway....dis 10 %
Sandwich Lever....dis 10 %
Horse Rasps.—Heller Bros....dis 45 %
"Black Diamond"....$6·00 to the £ currency
Horse Shoes.—
Rhode Island (Perkin's Pattern)....⅌ keg, $5 50
" Mule.... " 6 50
" Trotting Shoes.... " 8 00
Tredegar Horse....per keg $5 50
" Mule....per keg 6·50
Hose.—
Boston Belting Co.'s Rubber Medium Sizes, dis 30&10 %
" " " Small Sizes, Hydrant....dis 40 %
Ice Tools.—W. T. Wood & Co.'s Saws....new list net
W. T. Wood & Co.'s Chest Hatchets....new list net
" " Axes....new list net
" " Loading Tongs....new list net
" " Medium, Small and Family Tongs....new list net
" " Chisels, Hooks and Grapples....new list net
Mattocks and Grub Hoes.—
Klein, Logan & Co.'s Mattocks....⅌ doz $13 00 @ 13 50
" " Grub Hoes, oval eye.... " 10 00 @ 11 50
Money Drawers.—
Pierpont & Co.'s Excelsior....per doz $40·00 net
Nails.—Wheeling....$3 25 rates
Packing.—Boston Belting Co.'s Rubber, Plain..dis 30 %
Boston Belting Co.'s Rubber, Pure....dis 25&5 %
" " No. 2 Plain....dis 40 %
" " Round and Square....dis 10&10 %
Picks.—Klein, Logan & Co.'s Railroad and Clay....⅌ doz $9 30 @ 11 00
Klein, Logan & Co.'s Coal.... " 7 45 @ 8 40
" " Poll.... " 12 60 @ 13 50
" " Stone.... " 14 40 @ 14 90
" " Tamping.... " 14 75 @ 15 35
" " Miners' Drifting.... " 10 25 @ 12 80
Plows.—Avery's Cast and Steel....dis 20 %
Collins Cast Cast Steel....new list net
Pekin Steel....new list net
Post Hole Augers.—Clark's Patent—
No. 1, ⅌ doz. $27; No. 2, $30; No. 3, $32....dis 20 %
Pulleys.—5 inch....per doz $4·25 net
4 inch....per doz 3·25 net
Nellis' Patent....new list dis 15 %
Pumps.
St. Louis, Farm, Patent Metal Lined...new list dis 50 %
Rakes.—Paddock's Premium Sulky....$28 00 net
St. Louis Revolving 14 tooth....4 65 net
" " 16 " ....4 90 net
" Hand Hay Rake....dis 20 %
Reaper Knives and Sections.—
Geo. Barnes & Co.'s Knives....dis 40 %
" " Sections....dis 40 %
Road Scrapers.—Steel....dis 45 %
Cast Iron....dis 10&5 %
Sad Irons.—Monitor Brand, Silver Polished..⅌ ℔ 4½c
Sash Weights.—Standard Solid Eyes....⅌ ℔ 4c
Saws.—Curtis & Co....dis 10 %
Scythes.—Dunn Edge Tool Co.'s....new list dis 20&5 %
Scythe Stones.—No. 1 Ind'n Pond ⅌ gr's, $7 00 } dis 25 %
Extra Indian Pond.... " 7 50
Premium.... " 10 50
Diamond Grit.... " 18 00
Shovels and Spades.—Myers & Armor....dis 15 %
O. Ames & Son....dis 12½ %
Grain Scoops, Pat. Corrugated Straps M. & A. dis 15 %
" " " T. Rowland's dis 15 %
" " " O. Ames & Son dis 12½ %
Sledges.—Smith's Stone or Coal Sledges—
Steel Face Polished....⅌ ℔ 15c
Solid Cast Steel.... " 35c
Snaths and Cradles.—Seymour Mfg. Co.'s..dis 20 %
Sorghum Machinery.—Bell Cane Mills....dis 15 %
Scantlin's Seamless Evaporators....dis 10 %
Springs.—Cleveland Spring Co.'s—
Carriage and Express....dis 12½ %
Blue Seat Springs....dis 15 %
Vises.—Solid Box....⅌ ℔ 16c
Wilson Mfg. Co.'s....dis 15 %
Wheelbarrows.—Railroad & Garden....new list net
Wrenches.—Coes' Genuine....dis 33⅓ %
Coes' Pattern....dis 50
Wagons.—Whitewater Farm Wagons—
Thimble Skein....No. 3, $76; 3½, $80 3¾, $81
Iron Axle....No. 1¼, $80; 1½, $83 1¾, $90

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.

IC, 10x14, Best Char..	$ 9·50	IX, 14x20, Roofing....	$11·50
IX, 10x14, " ..	12·00	IC, 20x28, "	19·00
IC, 12x12, " ..	10·00	IX, 20x28, "	23·50
IX, 12x12, " ..	12·50	IC, 10x14, Coke..	8·50 @ 9·00
IC, 14x20, " ..	10·00	IC, 14x20, "	9·00
IX, 14x20, " ..	13·00	IC, 10x20, "	14·00
IC, 14x20, Roofing....	9·00		

Usual difference for odd sizes.

Block Tin.
Large Pigs....25c | Bars....27c
Small " L. & F....26c |
Sheet Zinc.
Casks....⅌ ℔ 10½c | Sheet....⅌ ℔ 11c
Solder.
No. 1, Refined, in bars or plate....16c
No. 2, " " 15c
Pig Lead....7½c
Sheet Copper.—14 to 100 lbs. Sheets 30x60....31c
10 to 12 lbs., " and 30x72....32c
6 to 9 lbs., " " 35c
Tinned, 14 and 16 oz. 14x48....42c
Planished, 14 and 16 oz. 14x48....39c
" No. 7, 8 and 9....41c
Copper Bottoms....34c

Sheet Iron.—	Com'n.	Sm'th.	Char'l.	Jun'ta
No. 16 to 20....	4¼c	4½c	6½c	7¾c
No. 22 to 24....	4¼c	4¾c	6½c	7¾c
No. 26....	4½c	5 c	6¾c	8 c
No. 27....	4¾c	5¼c	6¾c	8¼c

Galvanized Iron....dis 30 %
Iron Rivets....dis 25 %
Iron Wire....dis 35 %
Coppered Pail Bail Wire....dis 20 %
Copper Rivets and Burs....dis 20 %
Genuine Russia Iron.
Perfect—No. 9, 10, 11, 12....per lb. 17c
Stained—No. 9, 10, 11, 12....per lb. 16c
Tare 22 lbs to Bdle. For less than 1 Bdle. add 1c. ⅌ ℔.
Retinned Stamped Ware....dis 20 %

CHICAGO.

(Reported by Frank Sturges & Co., 72, 74 & 76 Lake St.)

September 10, 1875.

Tin Plate.—

10x14, IC, Ch'l. Good.$		14x20, IX, Ch'l Best.	$13 00
10x14, IC, " Best.	9 50	14x20, IXX, " " .	15 50
10x14 IX, " " .	12 00	14x20, IXXX, " " .	18 00
12x12, IC, " " .	10 00	DC, 100 Plate, " " .	9 50
12x12, IX, " " .	12 50	DX, " " .	12 00
14x20, IC, " " .	10 50	DXX, " " .	14 50
		DXXX, " " .	17 00

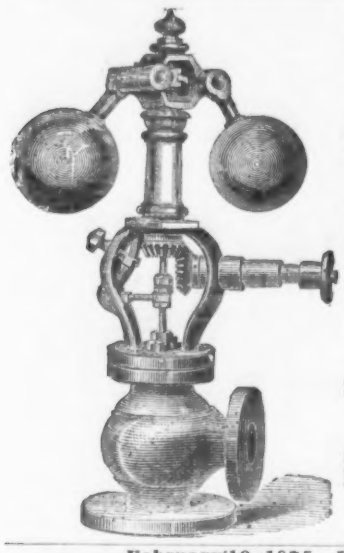
Roofing IC, Charcoal, Best....9 00
Roofing IX, Charcoal "....11 50
20x28, IC, Charcoal Roofing, Com....18 00
20x28, IC, " Good....18 50
20x28, IC, " Best....19 00
20x28, IX, "....23 50
10x14, IC, Coke Plates....8 50 to 8 75
14x20, IC, " ....9 00 to 9 50
10x20, IC, " 14 00
Block Tin.—
Large Pigs....25c | Bars....27c
Small....26c |
Zinc.—Sheet, 500 to 1000 lb. Casks....10½c
Loose Sheets....11c
Slab Zinc or Spelter....7½c
Copper.—Bottoms....34c
Sheathing....32c
Planished....39c
" Boiler lengths....41c
Ingot....—
Bolt....35c
Braziers' Sheets.—
30x60, 6 & 7 lbs....⅌ ℔ 39c | 30x60, 10 & 12 lbs...⅌ ℔ 35c
30x60, 8 & 9 lbs.... " 37c | 30x60, 15 to 100 lbs. " 32c
Solder.—F. S. & Co.'s make.
Best Fine....20c
No. 1....19c
Roofing....17c
Braziers' or Spelter Solder....35c
Antimony....18c
Babbit Metal—F. S. & Co.'s....16c
No. 2....14c
Sheet Iron.—

	Common.	Smooth. Com.	Smooth Charcoal.	Smooth Juniata
No. 24....	4½c	5½c	6¾c	8¾c
25 & 26....	4½c	5¾c	7 c	9 c
27....	4¾c	6 c	7¼c	9¼c

Galvanized Iron....dis 30 %

No. 16 to 20....	12c	No. 27....	15c
21 to 24....	13c	28....	16c
25 & 26....	14c		

Russia Iron.— | No. 1 Stained....16c
Perfect....17c | In Sheets, 1c. higher.
American Russia.— | B....11c
A....14c | In sheets, 1c higher.
Lead.— | Lead Pipe, in full coils .8¼c
Pig....7½c | Lead Pipe, when cut..8¾c
Bar....8½c | Sheet Lead....9¼c
Wire—Bright....dis 35 %
Coppered....dis 30 %



TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

BETHLEHEM, PA.

ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR,

AND

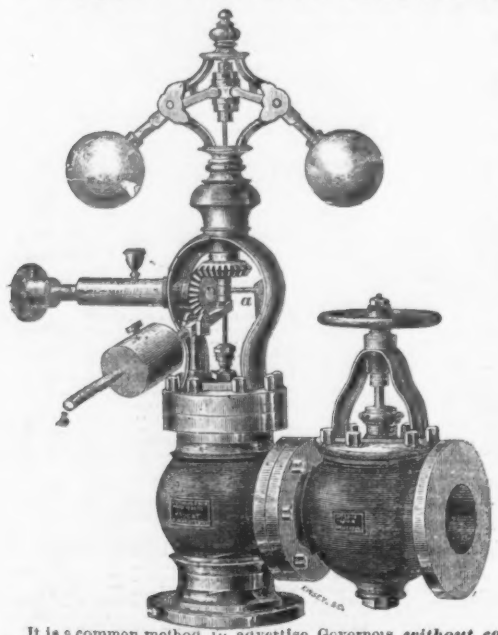
Buoy's Patent Counter Scale.

No Nest of Weights.

Circulars sent free

February 10, 1875. REDUCED PRICE LIST OF THE

JUDSON PATENT IMPROVED GOVERNORS.



☞ When Governors are ordered, be particular and say Governor with Stop Valve, or without Stop Valve; and either Black, Finished or Portable, as you may require, and with or without Lever Attachment.

For dimensions and other particulars send for Illustrated List.

Capacity of Valve or Diameter of Steam Pipe in inches.	Price, Black.	Price, Bright Finish.	Price, Portable.	Price of Lever Attachment for altering speed.	Price of Stop Valve.
⅛	18·00	20·00	17·00	..	..
¼	20·00	22·00	19·00	..	..
1	24·00	27·00	22·00	2·00	5·25
1¼	29·00	32·00	27·00	2·25	6·60
1½	34·00	38·00	31·00	2·50	8·50
2	41·00	46·00	38·00	2·75	11·50
2¼	47·00	54·00	..	3·25	16·00
2½	50·00	57·00	47·00	3·50	17·00
2¾	55·00	62·00		3·75	19·00
3	62·00	70·00		4·25	22·00
3½	71·00	80·00		4·50	27·00
4	81·00	92·00		5·00	32·00
4½	91·00	103·00		5·50	37·00
5	102·00	114·00		6·00	42·00
5½	116·00	129·00		6·50	48·00
6	134·00	148·00		7·00	55·00
7	160·00	176·00		8·00	69·00
8	199·00	219·00		9·00	83·00
9	230·00	255·00		10·00	..

No Larger Portable made than 2½ in.

No Charge for Boxing & Cartage.

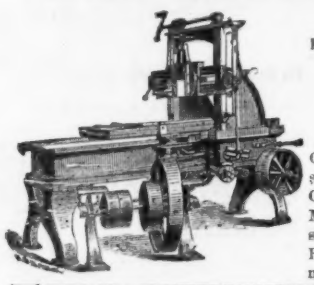
It is a common method to advertise Governors *without cost*, unless satisfactory to the customer, and then charge *High Prices* for doing what any good Governor will do. Various Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the above list. We guarantee the Judson Governor will do all any other Governor can do, and in Accuracy and Durability—the main essentials—we guarantee it shall do more.

JUNIUS JUDSON & SON, Rochester, N. Y.

The Pratt & Whitney Co.,

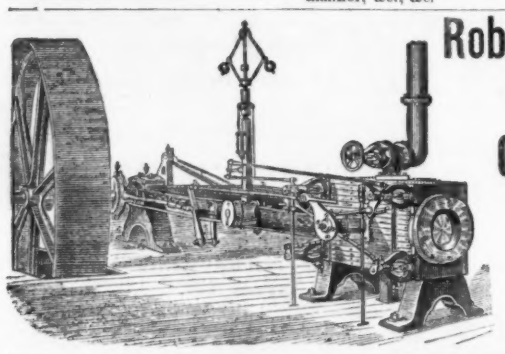
Hartford, Conn.,

Have constantly on hand and making



Drop Hammers

Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.



Robt. Wetherill & Co

CHESTER, PA.

Corliss Engine BUILDERS

AND

Boiler Makers.

THORNE, DeHAVEN & CO.

21st Street, above Market,
PHILADELPHIA.

DRILLING MACHINES.

PORTABLE DRILLS. Driven by power in any direction, self-feed and convenient adjustment.

RADIAL DRILLS. Self-feed—large adjustable box table—separate base plate, every convenience.

VERTICAL DRILLS. Self-feeding—of new and improved designs.

MULTIPLE DRILLS. For boiler work, etc., 2 to 20 spindles, fed and returned by power or hand, together or separately.

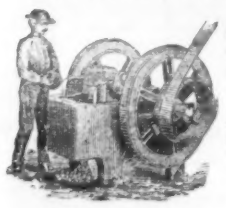
HORIZONTAL BORING AND DRILLING MACHINES. For large pieces—with boring head, adjustable, vertically and horizontally.

SPECIAL DRILLS. For special work. Gun Blank Drills, Coal Drills, &c., built to order.

BLAKE'S PATENT

STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength



For reducing to fragments all kinds of hard and brittle substances, such as STONE for making the most perfect McADAM ROADS, and for making the best CONCRETE. It breaks stone at trifling cost for BALLASTING RAILROADS It is extensively in use in MINING operations, for crushing

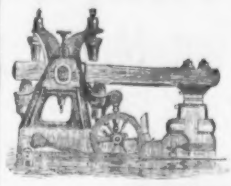
IRON, COPPER, ZINC, SILVER, GOLD, and other ORES.

Also for crushing **Quartz, Flint, Emery, Corundum, Feldspar, Coal, Barytes, Manganese, Phosphate Rock, Plaster, Soapstone, &c.**

For Illustrated Circulars, and particulars, address,

BLAKE CRUSHER CO., New Haven, Conn.

BRADLEY'S CUSHIONED HAMMER



Has Larger Capacity,

Is More Durable, takes up Less Room, does More and Better Work with less expense for Power and Repairs than any other Hammer in use.

GUARANTEED as RECOMMENDED.

Address, BRADLEY MANUFACTURING CO., Syracuse, N. Y.

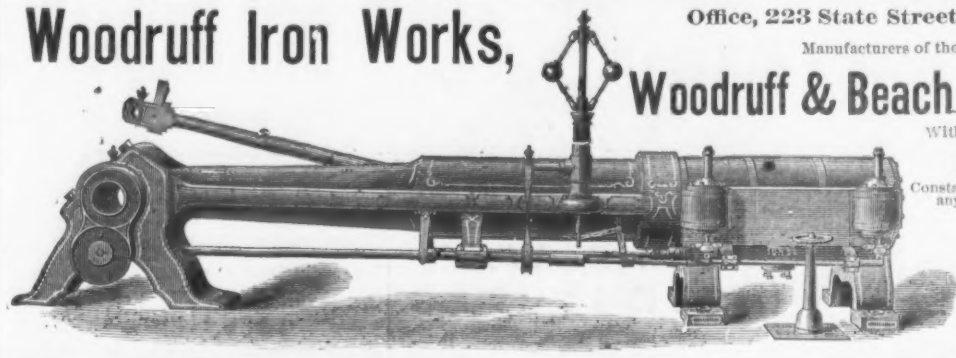
Woodruff Iron Works,

Office, 223 State Street, Hartford, Conn.

Manufacturers of the Celebrated

Woodruff & Beach Steam Engine,

With recent valuable improvements.



Steam Boilers

Constantly on hand and made to order any size or style. Special attention given to the manufacture of

MILL WORK

And all kinds of Machinery.

CASTINGS

Of any size or style. Direct all letters to **The Woodruff Iron Works, Hartford, Conn.**, as the Woodruff & Beach Iron Works and firm of Woodruff & Beach are both dissolved.

Knowles Patent Steam Pumps

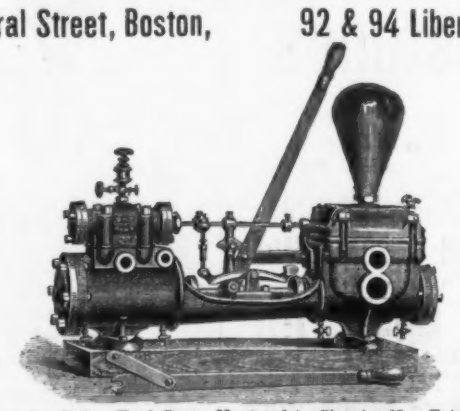
MANUFACTURED BY THE

KNOWLES STEAM PUMP WORKS,

WARREN, MASS.

WAREHOUSES:

14 & 16 Federal Street, Boston, 92 & 94 Liberty Street, N. Y.



Cut above represents regular Boiler Feed Pump, No. 3 and 4. Showing New Patent Valve Motion, and Hand Power LEVER Attached and Detached.

FIRE PUMPS, a specialty.

Mining Pumps (both Double Acting Plunger, and Piston Pattern,) which we guarantee to run absolutely noiseless on any lift from 100 to 600 ft., at a single lift, a specialty. Pumps for every possible duty. Prices as low as any, and our workmanship and material altogether the Best.

Every machine furnished under a complete guarantee.

Morse Twist Drill and Machine Company,

New Bedford, Mass.

Sole Manufacturers of

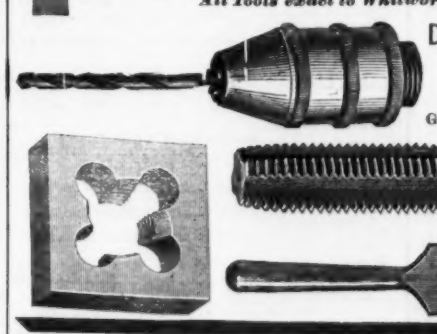
MORSE PATENT STRAIGHT-LIP INCREASE TWIST DRILL.

Beach's Patent Self-Centering Chuck.

Also Manufacture **Patent Taps and Dies, Patent Screw Plates, Patent Tap Wrenches, Pipe Taps and Pipe Reamers, Gas Dies.**

SOLID AND SHELL REAMERS.

All Tools exact to Whitworth's Standard Gauge.



Drills made to fit any Socket desired.

EDWARD S. TABER, Treas.
GEO. R. STETSON, Supt.

Machinery without Lubricant

METALINE.

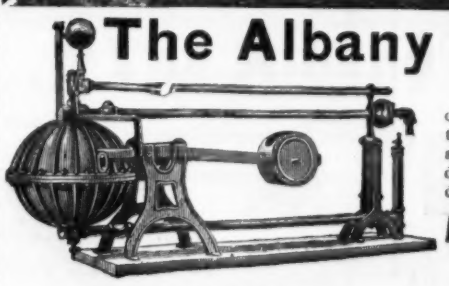
Machinery Metalined, or Metaline furnished to Machine Builders.

No oil or attention required. Runs with little or no wear. No dirt or danger from fire. No damage to goods in process of manufacture. Years in use by best concerns, who are refitting old, and ordering new machinery to be metalined.

AMERICAN METALINE COMPANY,

61 Warren Street, New York City.

The Albany Steam Trap.



This Trap automatically drains the water of condensation from *Heating Coils*, and returns the same to the Boiler *whether* the Coils are *above or below* the water level in Boiler, thus doing away with pumps and other mechanical devices for such purposes. Apply to

Albany Steam Trap Company,

Albany, N. Y.

Whittier Machine Co.,

1176 Tremont St., Boston, Mass.

Manufacturers of

STEAM ENGINES, BOILERS, ELEVATORS and MACHINERY.

This Company has just received **the highest award, a Gold Medal, for Safety Elevators,** from the Massachusetts Charitable Mechanics Association.

CHARLES WHITTIER, Prest. JAMES STURGIS Treas.

All Brass or Iron Body,

BRASS MOUNTED VALVE.

The EDDY VALVE

Made by the

MOHAWK & HUDSON MFG. CO.,

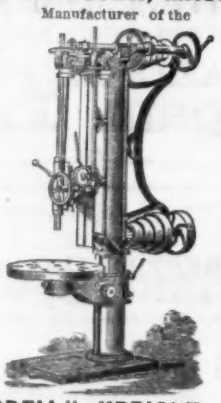
Waterford, N. Y.

Four miles from Troy, N. Y., by steam or horse cars.

P. BLAISDELL & CO.,

WORCESTER, MASS,

Manufacturer of the



'BLAISDELL" UPRIGHT DRILLS

And other First-Class Machinists' Tools.

Patented Steam and Hydraulic, April 1, 186

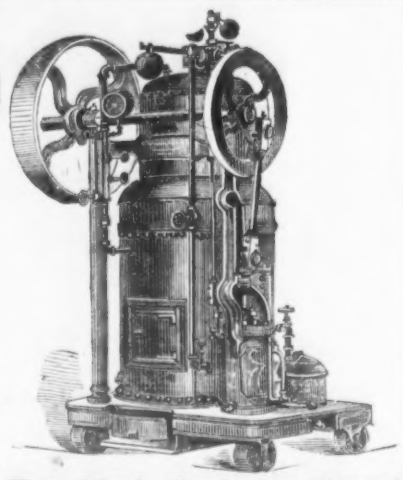
EAGLE PACKING,

Of various sizes for **ENGINES and PUMPS** manufactured by JAMES GLANDING & CO., No. 115 Queen St., Philadelphia. What the proprietors claim for the Eagle Packing: 1. Its general adaptation to all purposes for which packing is used. 2. Its durability. It will outlast any other article in use. 3. Its cheapness. It can be furnished to the consumer at a lower rate than any other packing

Machinery, &c.

THE

Shapley Engine



Patented Feb. 10, 1874.

COMPACT,
PRACTICAL,
DURABLE,
ECONOMICAL.

$200·00.

Cheaper than any Engine offered of the same capacity.

MANUFACTURED BY

SHAPLEY & WELLS,
Binghamton Iron Works,
Binghamton, N. Y.

Manufacturers of **Steam Engines, Boilers, Water Wheels, Circular Saw Mills and Mill Work generally.**

Ludlow Valve Mfg. Co.,

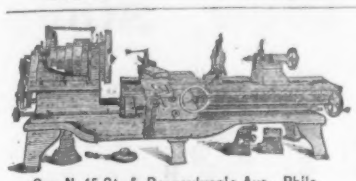
OFFICE AND WORKS:

938 to 954 River St. & 67 to 83 Vail Ave., Troy, N. Y.,

VALVES

(Double and Single Gate, ¼ in. to 48 in.—outside and inside Screws, Indicator, &c.) for Gas, Water and Steam. Send for Circular.

Also FIRE HYDRANTS.



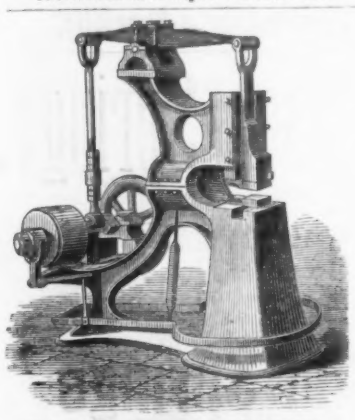
E. HARRINGTON & SON,
Manufacturers of

ENGINE LATHES,

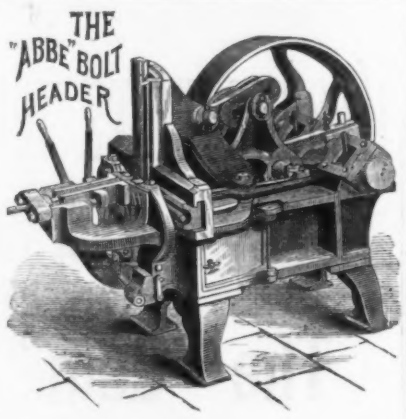
From twelve (12) to forty-eight (48) inches swing;

Hand Lathes; Wood Turning Lathes; Vertical Drills; Boring Mills; Tapping and Centering Machines; Screw Press for Mandrels Grindstone Boxes.

Cor. N. 15 St. & Pennsylvania Ave., Phila.

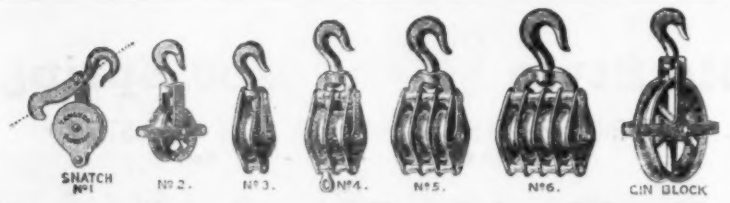


THE PALMER POWER SPRING HAMMER.



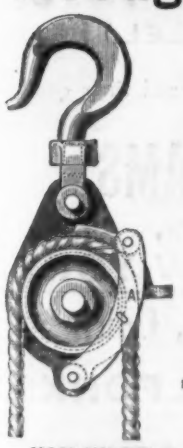
Of these Machines we are building sizes to meet the requirements of all Manufacturers and Workers of Iron and Steel. In simplicity, durability, ease of operation, accuracy, and range of work, we guarantee them superior to any Machines of their kind produced in the world. For prices, references, and full descriptive circulars, address

S. C. FORSAITH & CO.,
Manchester. N. H.



Wrought Iron Tackle Blocks,

FOR ROPE OR CHAIN.



Weston's Patent
RATCHET DRILL.
Style "A" Six Sizes.
Five other styles made, all wrought iron.

Patent Self-Sustaining Rope Pulley Blocks.
Same as the ordinary block, but suspends the weight at any point.
Weston's Patent Differential Pulley Blocks.
Made from ½ ton size to 10 tons.

VAN WART & McCOY, Sole Agents, 134 & 136 Duane St., N. Y.

IMPROVED
Engine Lathes
SCREW MACHINES, &c.
JONES, LAMSON & CO.,
Windsor, Vt.

BOOMER & BOSCHERT PRESS CO.
Syracuse, N. Y., & 26 Beekman St., N. Y. City.

For Cider, Wine, Hay, Lard, Tallow, Paper, Cotton, Seed Oils, *and other purposes where great pressure is required.*
☞ **Send for Circulars.**

The Frazer Axle Grease and Lubricator.

A pure Lubricator, free from water, gum or sediment. The best article made for ***Wagons, Open Journals, Cog Wheels Rollers*** and wherever a ***Solid Lubricator*** or ***Grease*** can be applied. Put up in Boxes, Kegs and Barrels. For prices see New York Price List in this paper.
Established 10 years.

Frazer Lubricator Company,
104 Maiden Lane, New York.

Machinery, &c.

Established 1848.

WM. SELLERS & CO.,

1600 Hamilton Street, PHILADELPHIA.,

Engineers, Iron Founders and Machinists.

RAILWAY SHOP EQUIPMENTS.

Our Steam Hammers, Lathes, Planers, Drills and Bolt Cutters
Are of Improved and Patented Construction.

Railway Turning and Transfer Tables,
SHAFTING & MILL GEARING, a specialty.

Pivot Bridges.

☞GIFFARD'S INJECTOR--IMPROVED, SELF-ADJUSTING.☜

Fairmount Machine Works,

Office, 2106 Wood St., Philadelphia, Pa.

THOMAS WOOD, *Adjustable Self-Oiling Post Hanger 6 in. from post to center of shaft.*

MANUFACTURES AS SPECIALTIES,

POWER LOOMS, with (new) Patent Box Motion. SPOOLING, BEAMING, DYEING and SIZING MACHINES.
BOBBIN WINDING MACHINES—wind direct from hank or skein to shuttle bobbin.
SHAFTING, with Patent Adjustable Self-Oiling Bearings.
PLANS taken, and FACTORIES fitted out complete with Shafting and Gearing.
PULLEYS, from 4 inch to 10 feet diameter, of most Approved Pattern.
SELF-ACTING WOOL SCOURING MACHINES, (Yeowdall's Patent.)
Machine and Foundry Work in all their branches. Send for Price List of Pulleys & Shafting.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO.

Issues Policies of Insurance after a careful Inspection of the Boilers

COVERING ALL LOSS OR DAMAGE TO

Boilers, Buildings and Machinery,

ARISING FROM

STEAM BOILER EXPLOSIONS.

The Business of the Company includes all kinds of STEAM BOILERS

Full information concerning the plan of the Company's operations can be obtained at the

COMPANY'S OFFICE, HARTFORD, CONN.,

or at any Agency.

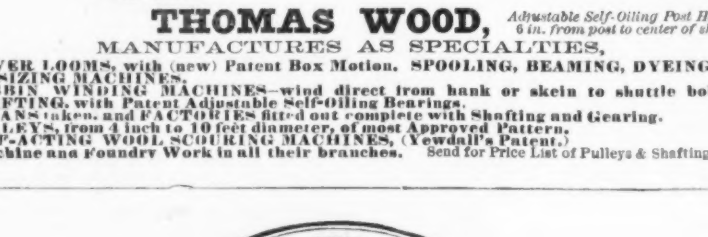
J. M. ALLEN Pres. W. B. FRANKLIN, Vice-Pres. J. B. PIERCE, Sec'y.

Board of Directors:

J. M. ALLEN, President.
LUCIUS J. HENDEE, Pres't Ætna Fire Ins. Co.
FRANK W. CHENEY, Ass't Treas. Cheney Brothers Silk Manufacturing Co.
CHARLES M. BEACH, of Beach & Co.
DANIEL PHILLIPS, of Adams Express Co.
GEO. M. BARTHOLOMEW Pres't Amer. Nat'l Bank.
RICHARD W. H. JARVIS Pres't Colt's Fire Arms Manufacturing Co.
THOMAS O. ENDERS, Sec Ætna Life Ins. Co.
LEVERETT BRAINARD, of Case Lockwood & Brainard
GEN. WM. B. FRANKLIN, Vice Pres't Colt's Pat. Fi Arms Mfg. Co
AUSTIN DUNHAM, Pres't Willimantic Linen Co.
GEO. CROMPTON, Crompton Loom Works, Worcester
EARL P. MASON, Pres't Prov. & Wor. R. R., Prov.
WILLIAM ADAMSON, of Baeder, Adamson & Co., Philadelphia.
WM. B. BEMENT, of Wm. B. Bement & Co., Phila.
S. P. M. TASKER, of Morris, Tasker & Co., Philadelphia.
C. W. FREELAND, Treas. Dwight Manufacturing Co., Boston.

THEO. H. BABCOCK, Manager,
New York Branch, No. 1 Park Place.

THE AMERICAN DREDGING CO.



BUILDERS OF STEAM DREDGING MACHINES,
GUNPOWDER PILE-DRIVERS, &c.

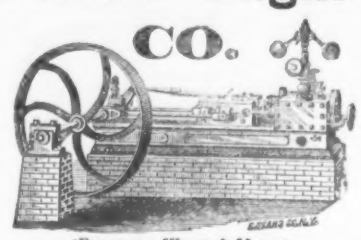
CONTRACTORS FOR

IMPROVING RIVERS AND HARBORS,
EXCAVATING CANALS,
RECLAIMING AND FILLING LOW LANDS,
PILING FOR FOUNDATIONS, PIERS, Etc.

Offices, No. 10 South Delaware Ave., Philad'a.

Machinery, &c.

UTICA Steam Engine CO.



(FORMERLY WOOD & MANN.)

STATIONARY & PORTABLE

STEAM ENGINES

The best and Most Complete Assortment in the Market.

These Engines have always maintained the very highest standard of excellence. We make the manufacture of Engines, Boilers and Saw Mills a specialty. We have the largest and most complete works in the country with machinery specially adapted to the work.

We keep constantly in process large numbers of Engines, which we furnish at the very lowest prices and on the shortest notice. We build Engines specially adapted to Mines, Saw Mills, Grist Mills, Canneries, Cotton Gins, Threshers and all classes of manufacturing.

We are now building the celebrated Lane Circular Saw Mill, the best and most complete saw mill ever invented.

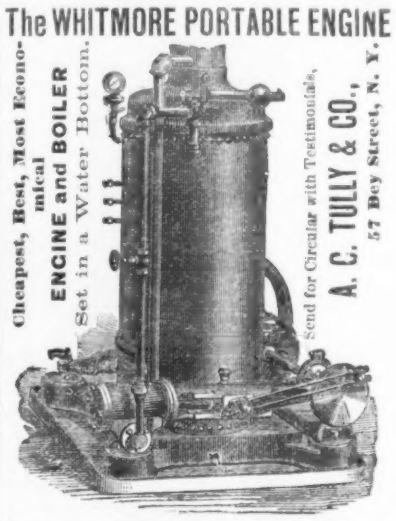
We make the manufacture of Saw Mill Outfits a special feature of our business, and can furnish complete on the shortest notice.

Our aim in all cases is to furnish the best machinery in the market, and work absolutely unequalled for design, economy and strength.

Send for Circular and Price List.

UTICA STEAM ENGINE CO.,
UTICA, N. Y.

The WHITMORE PORTABLE ENGINE



Cheapest, Best, Most Economical ENGINE and BOILER Set in a Water Bottom.

Send for Circular with Testimonials,

A. C. TULLY & CO.,
57 Bey Street, N. Y.

LATHES, PLANERS,

and other

Machinists' Tools.

For Sale by

New Haven Mfg. Co.,

NEW HAVEN, CONN.

MINERS' CANDLES.

Superior to any other Light for Mining Purposes. Manufactured by

JAMES BOYD'S SONS,
Nos. 10 & 12 Franklin St., N. Y.

JOHNSON'S PATENT UNIVERSAL
LATHE CHUCK.

We invite attention to the superior construction of this chuck. Its working parts are **absolutely protected from dirt and chips.** It is strong, compact and durable, and will hold the greatest variety of work, as the jaws are adjustable with a range the full diameter of the chuck. For Price List address,

Lambertville Iron Works, Lambertville, N. J.

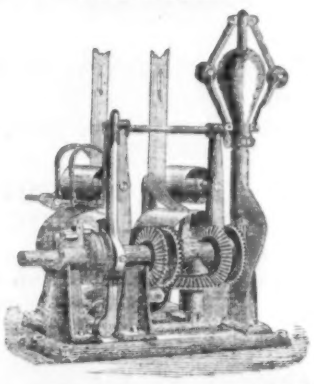
DIFFERENTIAL GOVERNOR.

The HARTFORD GOVERNOR CO.,

Sole makers of the

Weaver Differential Governor

FOR WATER.



Powerful, positive, radically new. Introduced and working with complete success. Write us for circular, etc., at

HARTFORD, CONN.